

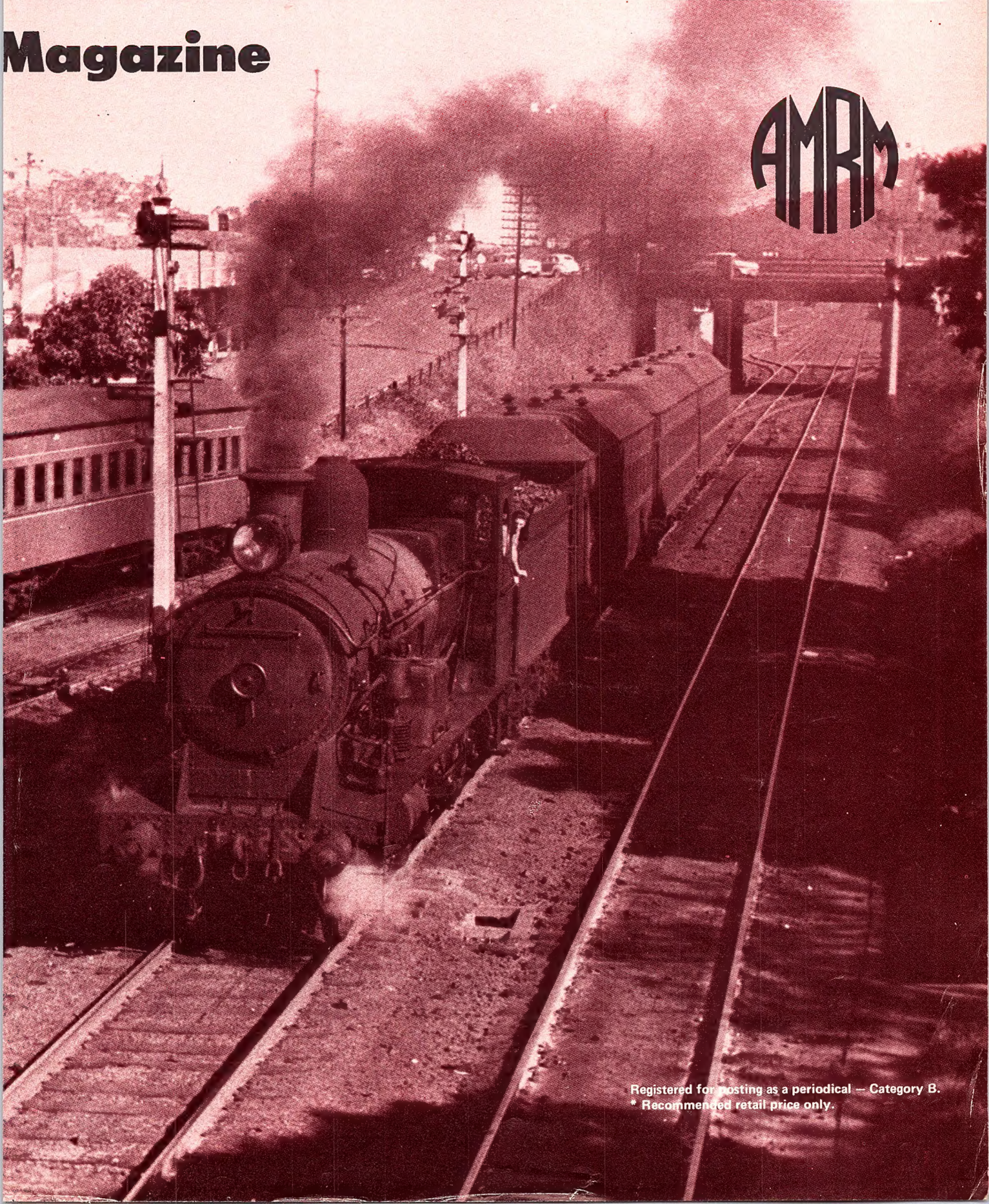
Australian

MARCH/APRIL, 1979. ISSUE 95 Vol. 9 No. 2

Indersack
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MODEL RAILWAY

Magazine

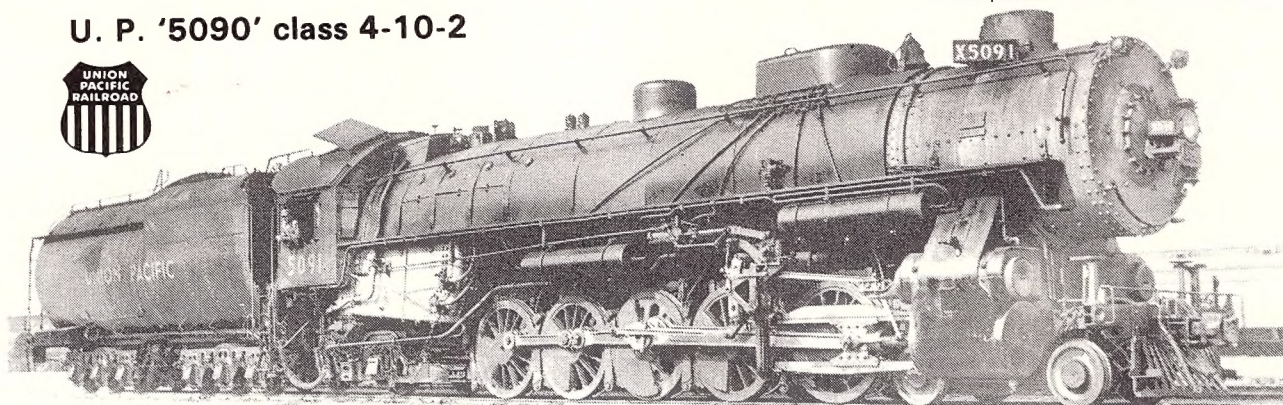


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NEW MOTIVE POWER IN HO SCALE —NOW AVAILABLE FROM STOCK.....

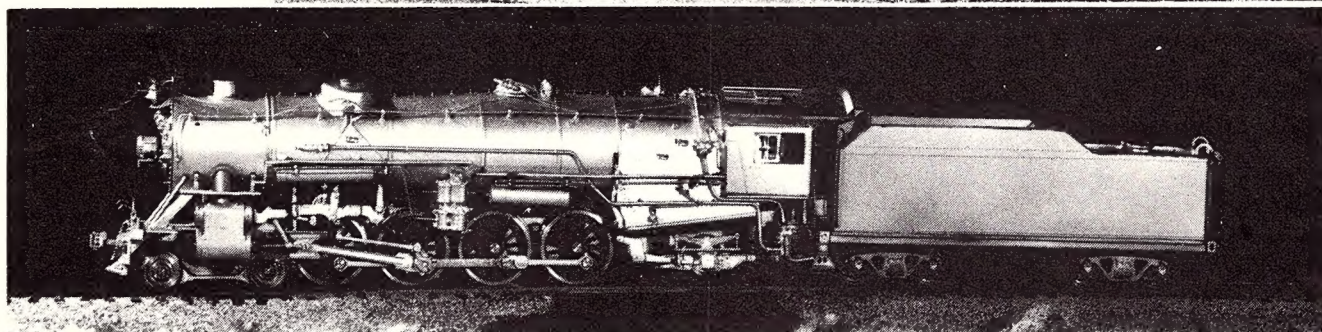
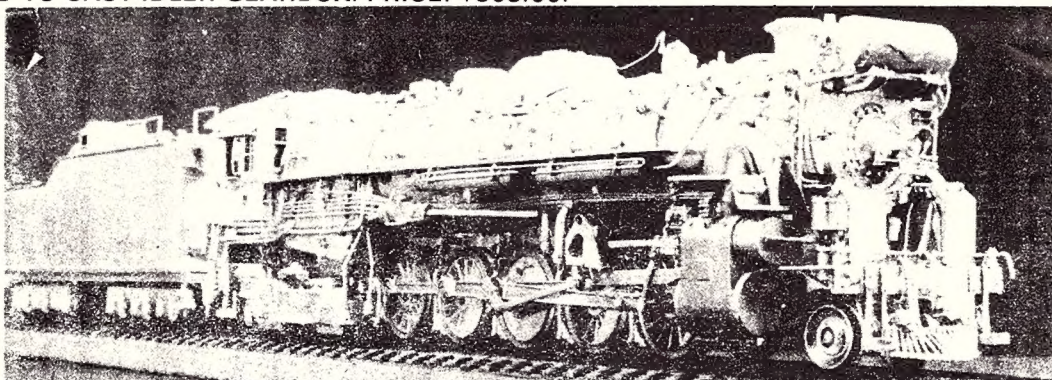
G. Best photo from the C. T. Felstead collection

U. P. '5090' class 4-10-2



PROTOTYPE OF OVERLAND MODELS' REBUILT 2 CYLINDER VERSION, UP '5090' SERIES 4-10-2 LOCO & TENDER. DRESSED WITH 76 CAL-SCALE CASTINGS, MODEL FEATURES CAB INTERIOR AND BIG 'SAGAMI' CAN MOTOR COUPLED TO CAST IDLER GEARBOX. PRICE: \$363.00.

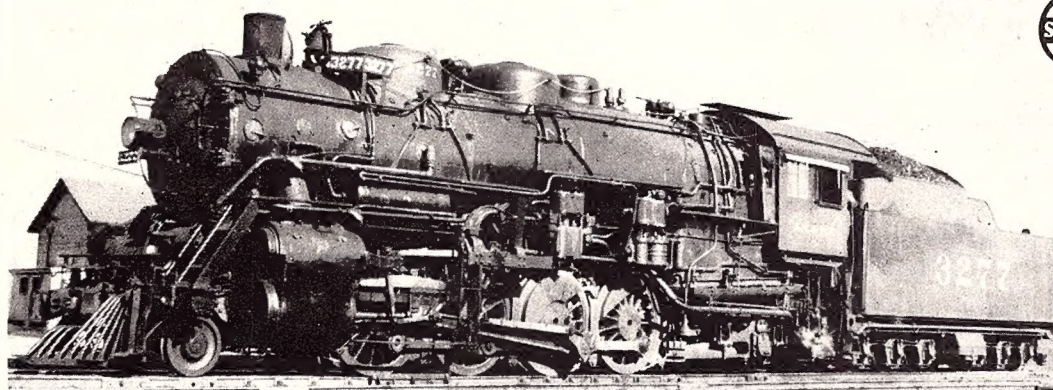
SUNSET MODELS' MAGNIFICENT TEXAS AND PACIFIC '610' 1-1A 2-10-4 LOCO AND TENDER. PRICE: \$306.75.



FROM KEY IMPORTS . . . THE LONG AWAITED USRA 4-8-2 HEAVY MOUNTAIN. PRICE: \$295.75.



AT&SF '3160' SERIES 2-8-2 WITH SINGLE SAND DOME AND 12,000 GAL TENDER, BY SUNSET MODELS. PRICE: \$261.35
VIEW SHOWS PROTOTYPE.



AT&SF '3192' SERIES VERSION, WITH WORTHINGTON FEED WATER HEATER AND COAL ONLY TENDER, ALSO AVAILABLE. PRICE: \$261.35

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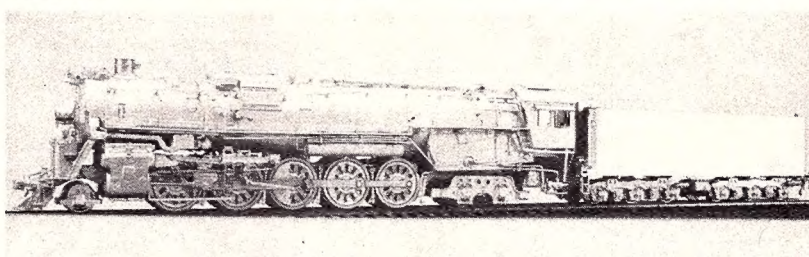
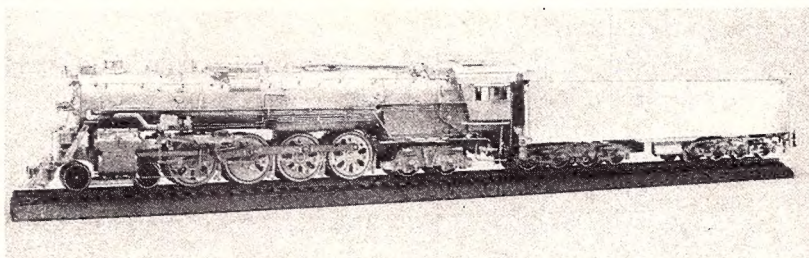
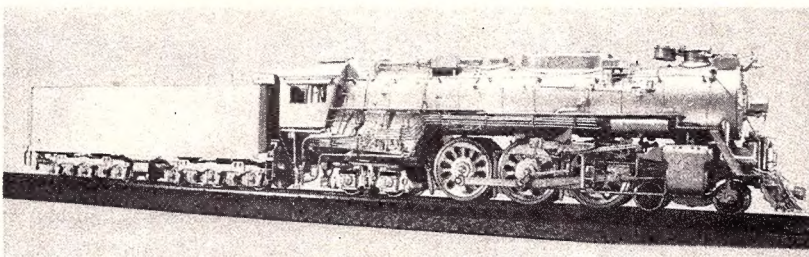
216-218 SWANSTON ST. MELBOURNE. PHONES: 663 3505 & 663 4792

NEW MOTIVE POWER IN HO SCALE —NOW AVAILABLE FROM STOCK.....

WESTSIDE'S SANTA FE "BIG THREE" PRESENTATION SET

Some of the interesting features of the Santa Fe "BIG THREE":

- First model of the 5001 class 2-10-4
- First model of the 2900 class 4-8-4
- Accurately scaled in length in height
- Lavishly detailed with piping and clean castings
- Brass driver centers (74, 80 and 84 inch)
- Speed recorder on the Hudson (Rt front wheel of pilot)
- Floating action drive system with idler gearing
- Powered by Canon Coreless Motor (25MM on the 2900 & 5001-20MM on the 3460 class)
- Phillipine Mahogany display case with red felt lining



PRICE, COMPLETE WITH TRANSPORT DISPLAY CASE: \$1010.95

Other News from the Dockyard...

Westside Models have now delivered the big HO Southern RR 2-8-2+2-8-0 'Ms-2' Series Duplex Loco & Tender (powered by 2 coreless motors) @ \$417.25 ea. For UP fans working in HO scale, the long awaited Alco Models' HO UP 3-Unit Oil Fired Gas-Turbine Locomotive is now expected in stock about the time these notes appear in print. All twelve driver axles are powered by means of two 'can' motors, while supplied with each model is an exact duplicate of the original builder's plate. Painted and etched in stainless plate, copied full size from the original. The Locomotive is dressed in American made investment castings and comes painted and finished. For those requiring the 3-Unit Coal Fired version, limited stocks remain of the Custom Brass model (also painted and finished) @ \$975.85. From Sunset comes the massive HO UP '9000' Series 4-12-2 Loco & Tender @ \$294.50 and in O gauge, the N&W 'J' Class 4-8-4 Loco & Tender @ \$659.95. The HO USRA Light 2-10-2 Loco & Tender is now available @ \$306.00, as well as the HO PRR 2-8-2 'L2-S' (Light USRA) Loco & Tender @ \$273.95. Both by Key Models. From Overland comes the RF&P 4-8-4 "Statesman" & Tender, finely dressed in Cal-Scale castings and featuring 'can' motor/idler gear drive, cab interior detailing etc. Price \$419.50. Shinohara's fine quality Code 70 N scale track range will soon be further enhanced by the addition of No 4 Wye and No 6 Left & Right Curved Turnouts. First stocks are expected about the time this issue goes to press. For narrow

gaugers working in HO gauge, United have now delivered the 2-6-6-2 Uintah Tank Mallet @ \$550.00, whilst coming shortly are the 2-8-2 D&RGW 'K-37' and 2-truck Harrington Shay Geared Locomotives. The latter Shay type to be available in HO gauge, at the same time. Westside's HO 3-truck 'C-1' Shay Geared Locomotive arrived in January @ \$494.00 ea. Whilst as these notes are prepared, the HO 3 2-truck 'B-1' version is on the way. Our new 9 page HO/HO3 Brass Car & Locomotive Price List is now available @ .60¢ per copy. Postage, 35¢ extra. Timewell Precision Flywheels are now available in some 9 different sizes, at prices ranging from \$2.85 to \$3.55 ea. See your nearest outlet for 'Dockyard' lines. The following HO Locomotives in the 'Classic Model' range have now been delivered by Key Imports: 4-8-4 D&RGW 'M-68' Series @ \$395.00 ea, 4-8-4 Timken '4 Aces', 4-8-4 NP '2626' Series and 4-8-4 AT&SF '3765' Series. All the latter three, \$353.00 each. From Overland Models, the HO Milwaukee Road 4-8-4 'S-3' Series Locomotive is due to arrive about March. These stocks will be of the 1950 version, with Mars headlight, cut away cab skirting etc. STOP PRESS: During March, Sunset Models are due to deliver the HO GN 'Q-2' 2-10-2, N&W 'J' 4-8-4 and UP 2-8-8-0 Locomotives. At the same time, Key Models will supply the HO PRR 2-10-0 and HO 3 RGS 'C-17' 2-8-0 Locomotives. For O guagers, coming from Westside are the AT&SF '3160' 2-8-2 and B&O 'Q4b' 2-8-2 Locomotives.

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SOME OF OUR KITS:—

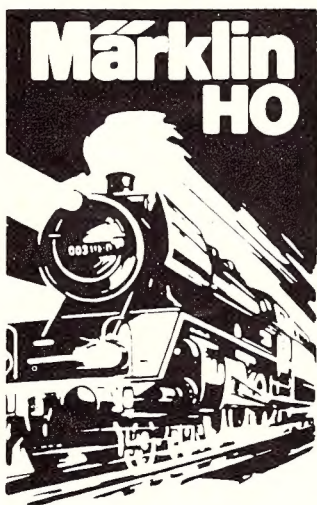
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HO	4094	Tank Loco as illustrated	
	5095	Baggage Wagon with 6 wheels	\$16.40
	6048	Manual High Speed point with Floating frog — No guard rail — Left or right hand	\$10.40
	6049	as for 6048 but with Point motor	\$17.45
N	7094	Tank Loco as illustrated	
	8355	Goods wagon with brake house	\$10.20

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Kibri Kits	1.40
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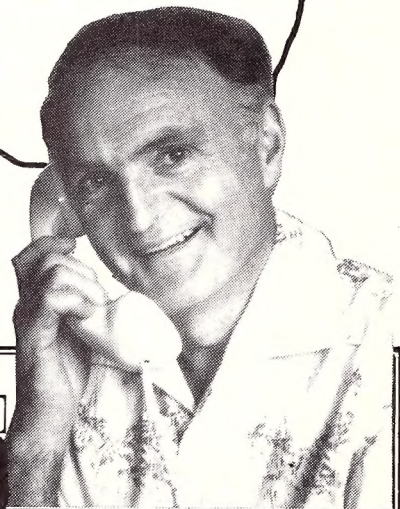
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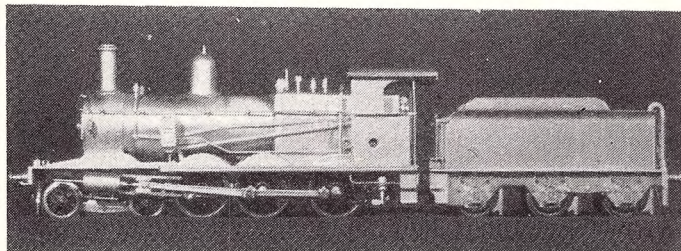


Bergs Brass Models

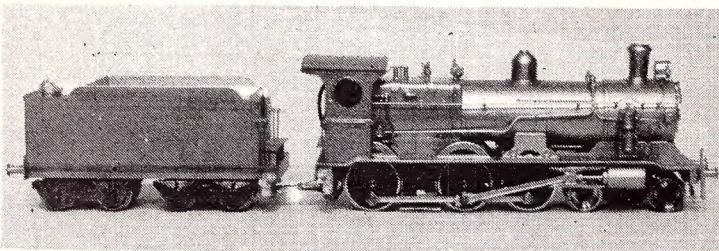
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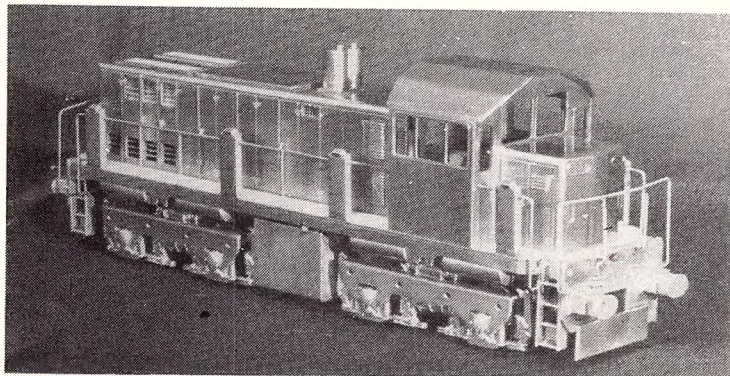
Large range from — Westside, Key Ltd, Alco Models, and many others.



C30T 4-6-0 \$285.00



C32 4-6-0, Revised. \$235.00

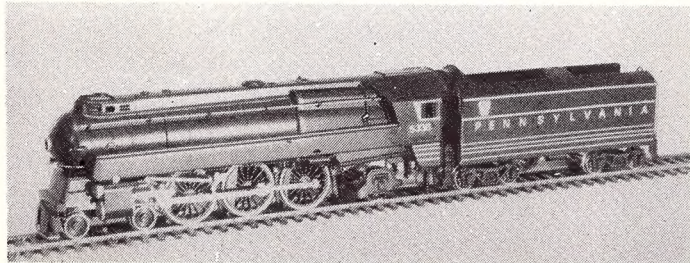


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Still available, our PHG guards van @ \$57.50.
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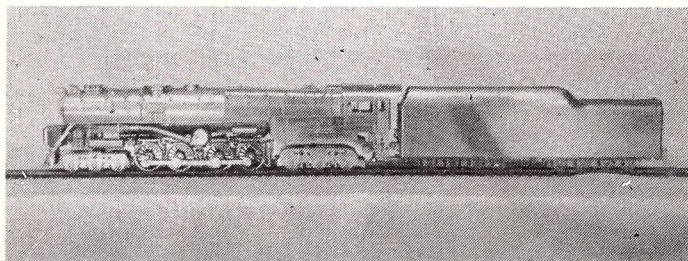
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PAR S6 6-8-6 from Alco Models.

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PRR K-4s 4-6-2 from Alco Models.

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HOn3 — 5 Idler flat	\$12.25
HOn3 — 6 Stock car	\$13.40
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*473 inside frame

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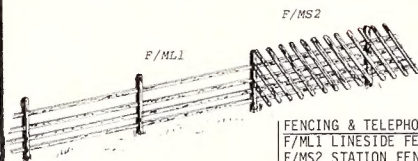
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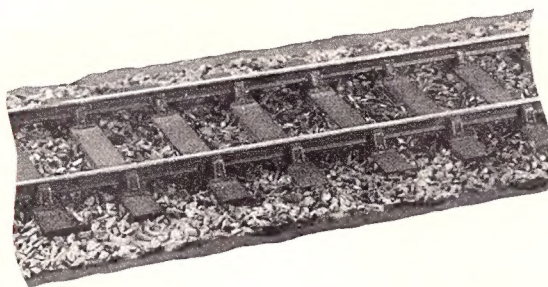
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H0/00



F/MS2

F/ML1



FENCING & TELEPHONE POLES

F/ML1 LINESIDE FENCING, 4-bar, 850mm	.85
F/MS2 STATION FENCING, diagonal picket, 850mm (LMS)	.85
F/WS3 STATION FENCING, vertical picket (GWR), 765mm approx.	.85
F/WS4 STATION FENCING, vertical picket, 765mm approx plus gates & ramps	\$1.75
TP/1 TELEPHONE POLES, pkt of 16	.85

NOTE: All fencing is white

SIGNAL KITS

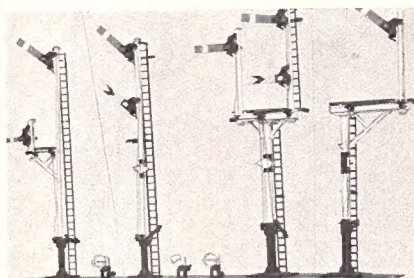
LQ/60 G.W.R. Lower Quadrant old type with square taper posts, ground signals & route indicator box, makes four signals	\$3.25
LQ/61 G.W.R. Lower Quadrant tubular post, makes two signals	\$1.25
UQ/70 L.M.S. Upper Quadrant tubular post. Unique rocker shaft method of operating arms. Makes four signals plus ground signals	\$3.25
LQ/71 L.N.W.R. Lower Quadrant square post, makes four signals	\$3.25
UQ/80 L.N.E.R. Lower Quadrant lattice post (ex GNR) finials, lamps, ladders, brackets, arms, plat-forms, wire & instructions. Makes four signals	\$3.25
PT/50 Pratt Truss Signal Gantry. Kit contains girder mouldings, plat-form, brackets, smoke deflectors etc. Designed for use with UQ/70 adapts to use with other types. No signals or posts included	\$1.95

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M/F400 Loco Driver & Fireman	\$1.00
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5071 L.M.S. Bogie Ore Wagon



UQ/70 L.M.S. Upper Quadrant Signals

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RT/4000 Fine Scale Plastic Sleeping Units, 18.2mm gauge. Packet of 5 metres	... \$7.50
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5062 G.W.R. Bogie Bolster 'A', includes floor, bolster & stanchions, Triang type couplers, 140mm long	... \$2.50
5063 G.W.R. 'Iron Mink', 10ft wheel-base chassis with brake gear etc., no couplers	... \$2.50
5064 G.W.R. 5-plank Open Wagon, correct pattern underframe and brake gear, Triang type couplers with provision for fitting other types. Water slide transfers	... \$2.50
5065 G.W.R. 12 ton Box Van, Triang type couplers with provision to fit other types. Water slide transfers with numbers for 6 vehicles	... \$2.95
5066 G.W.R. Motor Car Van (Mogo) built for carriage of new cars from works such as Morris Cowley at Oxford	\$2.95
5069 G.W.R. 'Toad' 20 ton Brake Van with dry transfer lettering	... \$3.25
5071 L.M.S. Bogie Ore Wagon (ex Caledonian Railways), Triang type couplers	... \$2.50
5072 L.M.S. 12 ton Box Van, arc roof, corrugated ends, 10ft wheelbase chassis with brake gear etc. no couplers	... \$2.50
5073 L.M.S. 3-plank Open Wagon with parts to make fitted B.R. version or older non-fitted type, Triang type couplers, transfers for either version	... \$2.50
5091 S.R. 12 ton Box Van with characteristic S.R. 3-centre roof, 10ft wheelbase chassis, no couplers	... \$2.50

LQ/61

COACH KITS - G.W.R. 4-WHEEL	... \$4.25
5610 All 3rd	5612 Composite
5613 Brake Composite	

COACH KITS - L.M.S. (MIDLAND) LOW ROOF

48ft SUBURBAN	... \$7.50
5710 All 3rd, 8 compartment	
5711 All 1st, 7 compartment	
5713 Brake/3rd, 6 compartment	
5714 Brake/3rd, 4 compartment	

COACH KITS - L.M.S. (MIDLAND)

48ft CLERESTORY	... \$7.50
5720 All 3rd, 6 comp., lavatory, luggage	
5722 Compo, 3-1st, 3-3rd, lavatory	
5723 Brake/3rd, 4 comp., lavatory, guard	

COACH KITS - L.M.S. (L.N.W.R.) 50ft

CORRIDOR ARC ROOF	... \$12.50
5730 All 3rd	5732 Composite
5733 Brake/Compo	5734 Brake/3rd

COACH SEAT MOULDING	... \$1.20
CSM/2 enough for eight compartments	

BOGIE KITS

BM-3 Midland 10ft Passenger Bogies as fitted to 5710 etc. with Triang type couplers	Pair \$1.65
B/LNW4 L.N.W.R. 8ft Passenger Bogies Pair	\$1.65
DF-1 Diamond Frame Freight Bogies with Triang type couplers Pair	\$1.20
PL-2 GWR Plate Bogies with Triang type couplers	Pair \$1.20



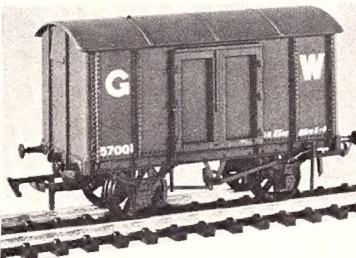
UNDERFRAME KITS

4360 Coach Underframe for 5610/12	... \$1.20
4361 Coach Underframe for 5613	... \$1.20
5050 Wagon Underframe, 10ft wheel-base, complete with wheels, no couplers	... \$1.20
5060 GWR Wagon Underframe, 10ft wheelbase with wheels & Triang type couplers	... \$1.35
5750 Underframe and Bogies for all LMS (Midland) coaches	... \$3.25

WHEELS - PLASTIC, PINPOINT AXLES

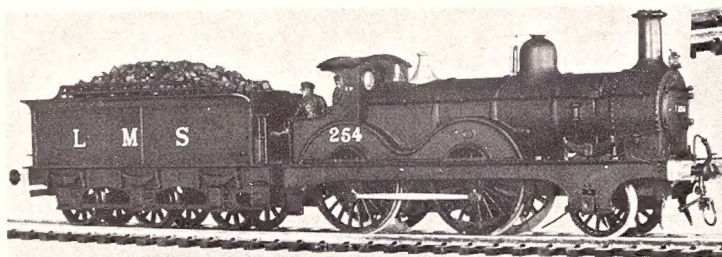
Per 8 wheels on 4 axles	
W/001 12mm spoked	50
W/002 12mm disc	50
W/003 14mm disc (Mansell)	50
W/004 14mm spoked tender	50

(Top left) 5611 GWR 4-wheeled Compo
(Centre left) 5710 Midland all 3rd
(Lower left) 5711 Midland all 1st



5063 G.W.R. 'Iron Mink'

5064 G.W.R. 5-plank Open Wagon



LOCOMOTIVE & TENDER KIT

5778 L.M.S. (MIDLAND) Johnson 2-4-0	
Loco with tender	... \$36.95

ILLUSTRATED CATALOGUE50

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For Trade & General Enquiries: AUSTRALIAN MODEL CRAFT CO., 577 DEAN ST., ALBURY, N.S.W. 2640 (P.O. Box 118)

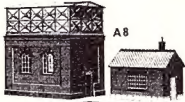
* Prices shown above are recommended prices only.

SUPERQUICK MODEL KITS

- A-1 Station Platform (Side) --- 2.25
- A-2 Station Building (Side) --- 2.25
- A-3 Island Platform --- 2.25
- A-4 Island Platform Building --- 2.25
- A-5 Two Track Engine Shed --- 3.50
- A-6 Signal Box & Platelayers Hut --- 2.25
- A-7 Goods Shed --- 2.25
- A-8 Water Tower & Weighbridge Shed --- 2.25
- A-9 Block of Flats --- 2.25
- A-10 Large Terminal Station Building with platforms etc. --- 4.50

BUILDING PAPERS

- D-1 Red Brick --- per sheet 20c
- D-2 Yellow Brick
- D-3 Engineer's Blue Brick
- D-4 Flat Red Tiles
- D-5 Grey Slates
- D-6 Grey Paving Stones
- D-7 Pink Paving Stones
- D-8 Grey Sandstone Wall (Ashlar)
- D-9 Red Stone Wall (Ashlar)
- D-10 Grey Sandstone Wall (Coursers)
- D-11 Red Stone Wall (Coursers)
- D-12 Grey Rubble Walling
- D-13 Red Rubble Walling



- B-21 Swan Inn --- 2.25
- B-22 Two Country Shops --- 2.25
- B-23 Barclay's Bank --- 2.25
- B-24 Farmhouse --- 2.25
- B-25 Police Station --- 2.25
- B-26 Hayloft & Barn --- 2.25
- B-27 Supermarket --- 2.25
- B-28 Elizabethan Cottages --- 2.25
- B-29 Church with Steeple --- 2.25
- C-1 Low Relief Hotel, Offices etc. --- 2.25
- C-2 Low Relief Cinema, P.O. etc. --- 2.25
- C-3 Low Relief Flats/Shops etc. --- 2.25
- C-4 Low Relief Period Shops/Offices --- 2.25

MERTEN

FIGURES & ANIMALS



HO/00 - \$2.50 --- N - \$2.25 --- O - \$3.95

- 800 Railway Refreshment Room Staff
- 806 Six ladies walking with bags
- *810 3 ladies, 3 men walking with bags
- 812 Six men with bags walking
- 818 Two groups of three tourists
- 820 Three groups of two walking
- 853 Six ladies individually seated
- *855 Three ladies, three men seated
- 859 Six men individually seated
- 865 Two groups of three seated
- 867 Three groups of two seated
- 870 Six workmen with picks, shovels etc.
- 876 Six gangers, four with sleepers
- *908 Station Staff: 5 men, 1 woman
- 914 Station Staff, policeman with dog
- 948 Six at beach with hoop, towels etc.
- 954 Six reclining on beach in swim togs
- 960 4 adults, 2 children at beach
- 963 Wedding Group: Bride, Groom etc.
- 967 Wedding Guests: 3 couples
- 2174 Beach Party with musical instruments
- 2234 Six transport workers with crates
- 2240 Six different transport workers

- 2258 Six trades people, butcher, baker etc.
- 2264 Four garbage men, cans, brooms etc.
- 2268 Loco drivers & firemen
- *2280 Train crew, shunters, greasers etc.
- 2286 Six people climbing stairs
- 2292 Three groups of two climbing stairs
- 2295 Six people going down stairs
- 2319 Washing day: lady hanging washing on line, lady with basket, 2 children helping, naked baby
- 2325 Six service station attendants
- 2337 Six building tradesmen, bricklayers, mortar carrier, labourers, foreman
- 2343 Six tradesmen: carpenters etc.
- 2398 Six men 'celebrating'
- 2399 Six fat people: 3 women, 2 men & boy



Above numbers are for HO/00 and are preceded by 'N' for N gauge. Numbers marked * are also available for O gauge.

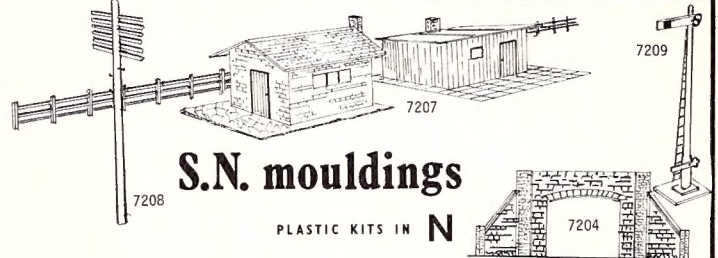
VOLLMER

EXCELLENCE IN PLASTIC KITS

N

HO-00

- | | | | |
|--|-------|--|-------|
| 7302 Built-up Arch Bridge 165x35x95 | 3.95 | 2506 Box Truss Bridge, 368mm long | 10.50 |
| 7503 Unadorned Luggage Platform | | 3506 Old-time City Station | |
| 460 x 15 x 4mm | 3.25 | 343 x 147 x 153mm | 18.95 |
| 7504 Passenger Platform with canopy | | 3540 Modern Suburban Station | |
| 650 x 35 x 40mm | 8.95 | 368 x 140 x 102mm | 14.95 |
| 7505 "Baden-Baden" Station | | 3713 Country House 127 x 127 x 70mm | 6.25 |
| 780 x 160 x 200mm | 27.50 | 3720 Modern Duplex 134 x 192 x 90mm | 6.50 |
| 7506 "Aldstadt" similar to "Baden" but smaller 330 x 115 x 135mm | 13.50 | 3723 House w/Photo Shop 178x108x77 | 7.95 |
| 7510 Branchline Station 152x128x78 | 11.75 | 3758 Fire Station w/tower 290x120x220 | 21.50 |
| 7540 Goods Shed 235 x 95 x 80mm | 11.75 | 3755 Police Station with tower | |
| 7603 Overtracks Signal Cabin | | 270 x 140 x 170mm | 19.75 |
| 200 x 60 x 130mm | 9.25 | 5707 Sand Tower 30 x 30 x 130mm | 4.95 |
| 7609 Three-stall Engine Shed with auto doors 180 x 150 x 95mm | 16.50 | 5708 Water Tower 84 x 84 x 150mm | 6.25 |
| 7700 House 65 x 40 x 45mm | 3.25 | 5710 Overhead footbridge | 8.50 |
| 7701 Small City House | 3.25 | 5715 Goods Shed 380 x 130 x 135mm | 14.95 |
| 7720 Department Store 130 x 100 x 92 | 6.95 | 5719 Coal Bunker with crane | 6.95 |
| 7724 Post office & Bus Terminal | | 5750 Single Stall Engine Shed 155 x 125 x 90mm | 9.95 |
| 158 x 115 x 105mm | 9.95 | 5754 Roundhouse, 3-stall 330 x 500 x 125mm | 33.95 |

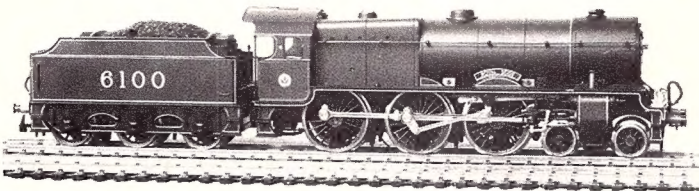


S.N. mouldings

PLASTIC KITS IN N

- | | | | |
|---|------|--|------|
| 7202 Platform Kit 380mm long | 1.25 | 7211 Large Station, canopy, sky-lights etc. 662mm long | 3.50 |
| 7203 Island Platform Kit, canopy, nameboards etc. | 2.50 | 7213 Stone Walling - 105 x 22 (5) | 1.25 |
| 7204 Single Tunnel Mouths with wing walls (Pair) | 1.25 | 7215 Two Storey House | 1.25 |
| 7205 Double Tunnel Mouths with wing walls (Pair) | 1.25 | 7216 Station with booking office etc. 510mm long | 3.25 |
| 7206 Plate Girder Bridge 80mm, single track, grey | 1.25 | 7217 Station Building and canopy | 2.00 |
| 7207 Two Lineside Huts | 1.25 | 7218 Post & 3-rail Fence 1150mm | 1.25 |
| 7208 Telephone Poles (21) | 1.25 | 7219 Signal Box | 1.75 |
| 7209 Signal Kit for two signals | 1.25 | 7220 Loading Gauges (Two) | 1.00 |
| 7210 Support Walls for 7206 | 1.00 | 7221 Thameshead Bus Kit (Metal) | 2.00 |
| | | 7221 Goods Shed - run through type | 2.75 |

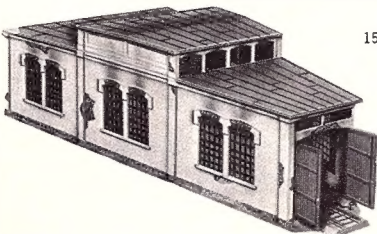
from RIVAROSSA the "ROYAL SCOT" \$137.50



The L.M.S. "Royal Scot" class of 4-6-0 locomotives was introduced in 1927 for working heavy express trains between Euston and Glasgow. The class had three cylinders, coupled wheels 6'9" in diameter and a boiler working pressure of 250 lb. per sq. in.

The Rivarossi model is that of class leader, locomotive number 6100 which was named the "Royal Scot". Painted in the original L.M.S. red livery the model is superdetailed with finely scaled valve gear, sand pipes, brake gear, brake hoses, separate hand rails and so on.

The motor which drives through a step down gear box is fitted in the closely coupled tender. Drive is taken through a drive shaft concealed beneath the footplate to the coupled wheels. This mechanism has a very smooth drive train and the locomotive runs beautifully at all speeds.



- 15103 Kit for single stall engine shed with automatic doors. Two or more can be joined to form a Roundhouse. Suits locos to 380mm long.

\$2500

- 5523 Set of 24 piers giving rising & falling gradient. For use with flyovers etc.

\$825



- 1271 Indiana Harbor Belt 0-8-0 Switcher with booster on tender. Detailed working Walschaert's valve gear, operating headlight. This model is 270mm long

\$6995

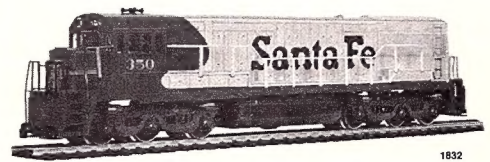
- 1256 Heavy Pacific Loco with tender of the Central Railroad of New Jersey - Sky Blue and Dark Grey .. \$82.50
- 1267 Clinchfield "Challenger 4-6-6-4 - Black .. \$149.95
- 1279 Hudson of the "Chesapeake & Ohio - Black .. \$82.50

- 1832 General Electric U25C Diesel Electric in the red and silver colours of the Santa Fe .. \$65.00

The prices in this advertisement may be subject to change. Look for AMC Price List "R-6" for latest listing.

- 229 Set - "Bonanza Freight" Old Time Loco with five freight cars and a caboose (no track) .. \$7500

- 250 Set - Santa Fe "De Luxe Super Chief" with streamlined Hudson locomotive and four passenger cars (does not contain track) .. \$12975



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BE/180

MARCH/APRIL, 1979
Issue 95, Vol. 9 No. 2
AT ISSN 0045-009X

The official Journal of SCMR in Australia.
 Incorporating the Yardmaster, bulletin of
 The Sydney Model Railway Society.

Published bi-monthly by S.C.R. Publications
 of P.O. Box 235, Matraville, NSW 2036 for
 the Southern Cross Model Railway
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 Printed by Publicity Press Ltd, of 29-31
 Meagher St, Chippendale, NSW 2008.
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 Associations by SCR Publications;
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ADVERTISING: Details available from
 S.C.R. Publications, P.O. Box 235,
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 NSW. Subscription starts with the first
 issue after receipt of money.

ADVERTISING DEADLINES: For all copy
 is as follows:-

May/June, 1979	20.4.79
July/August, 1979	22.6.79
September/October, 1979	17.8.79
November/December, 1979	19.10.79
January/February, 1980	14.12.79

LOCAL FREIGHT AT TAGGARTS HILL
MODIFICATION TO WORKSHOP 5 SFX/SBX Bogies
N.S.W. 'Cowboy Cars'
TRACK - FIVE
A CASE FOR DIESEL PHOTOGRAPHY
AMRM NEWS
POINT RODDING
A.N.R. MISCELLANY - 2
72 CLASS IN N SCALE
N.S.W.P.T.C. 72 Class Diesel Hydraulic Shunter

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Neil Graham	14
Rod Paxton	14
Clive Huggan	15
Leon Oberg	19
	22
Ross Hurley	23
Paul Rogers	25
Keith King	26

A DREMEL SPEED CONTROLLER
S.A.R. RAILCAR TRAILER 210
PROTOTYPE PLAN: V.R. 'S' Class Diesel Electric Locomotive
Ian Weickhardt and Roger Johnson
'S' Class Diesels of the Victorian Railways
CANNING YOUR GARRATT
MAKING YOUR HORNBY 'S' CLASS WORK
PROTOTYPE PLAN: S.A.R. 'Y' Class Open Wagon
Phil Curnow and Roger Johnson

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NO LIFE
AN INTRODUCTION TO RAILWAY SIGNALLING
BATTERY POWERED LOCOMOTIVE
MAILBAG
REVIEWS
BOOKS
MARKET PLACE

COMMENT

Some Words To The Wise

Australians are often known as knockers
 and I guess that as soon as one tries something
 different he becomes a sitting duck for the less
 active to get out the long knives. 'Armchair
 modeller' is a tag attached to some modellers
 who wield the knife in theory but not in
 practice. 'Rivet counter' takes the knife in both
 hands and wields it with more enthusiasm. As
 a frequent contributor to this magazine I am
 getting used to hearing a comment which
 usually goes like this. "Why bother with all that
 prototype stuff? Who reads it anyway . . . give
 us some MODELLING articles like how to build
 a picket fence and a mile post, you know,
 something USEFUL. Pulled a clanger in that
 last issue. Thought you would know they had
 three roof straps" and so it goes.

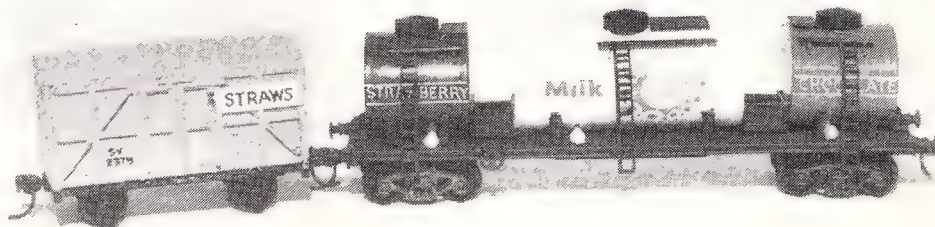
My personal preference when modelling a
 wagon or engine is that the more I know about
 it the more accurate my model may be and the
 more realistic my use of it will be. There are
 problems associated with writing articles for
 AMRM on present day operations however
 due to the length of time required in production
 and this should be kept in mind by the reader.

Except for the final printing of the magazine
 all of the work associated with the production
 is by volunteers. Writing, editing and proof
 reading is done in spare time that other
 modellers would use for work on their layouts

etc so I think it is reasonable for the readers to
 accept a few errors of omission or oversight.
 To allow the production team to get the articles
 into final standard required for publication a
 minimum of six months is required during
 which time it is impractical to attempt to alter
 wording. As a result it is quite possible to say
 that the XYZ class of wagons are all black but
 when the magazine reaches the reader the
 wagons have all been painted white. For this
 reason we have begun to include the date of
 preparation in the text of prototype articles.

Two examples that I was responsible for may
 show what I mean. In the OBF wagon article I
 said that soda ash was not carried in these
 wagons any more. Not long after the magazine
 reached the newsstand three OBF's derailed at
 Nairne. Guess what they were carrying.
 Another cause for confusion is that the SAR
 operated on broad, narrow and more recently
 standard gauges. In the brief discussion on
 SAR flats for container traffic (AMRM
 Sept/Oct, 1978) I said there were no four
 wheel flats left in revenue service on the SAR.
 Although this is true for broad and standard
 gauges, I overlooked the Port Lincoln narrow
 gauge division which still has quite a large
 number. Unless readers query these errors in
 background detail AMRM will not be printing
 any one line corrections in following issues. If
 the error is something that will affect a
 modeller's product such as wrong colours or
 numbers, etc, then a correction will be printed
 as soon as we become aware of the error.
 Whilst we all aim to be as accurate as possible
 we are still human.

Phil Curnow



MOOVEing along with the times Max Burke completed the NSW TMT milk tank and accompanying SV van as outlined in his MILK TANKS article in the last issue of AMRM. The SV van was converted from an ABV to carry the straws that are needed to drink the milk. Further details of the TMT wagon in next issue of AMRM.

ON THE COVER: 3225 on a Down Port Kembla passenger train, approaching Thirroul in January 1960. Photo by Dave Taylor.

N

1:160 9mm

PIKO

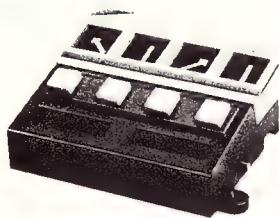
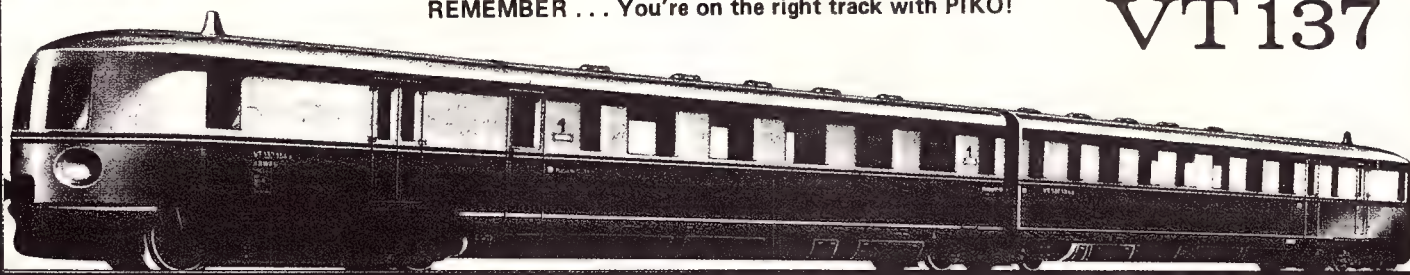
MODELLBAHN

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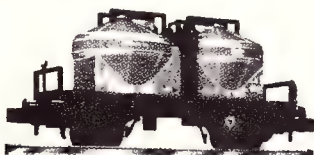
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VT 137



399/51 switch block with acknowledgement



5/4407 Model of the DR cement truck.



5/051 PIKO switch relay — double coil drive with isolating section and reply contacts.

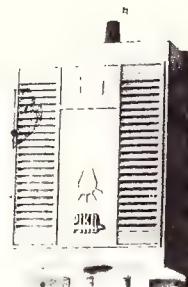
The model railway running will be still more realistic — PIKO's Lux Constant keeps the lights burning in your trains!

5/7000 Light-fitting generator L 1 „Lux Constant“ enables:

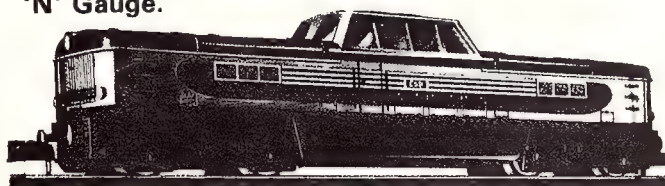
Train lighting independent of the operating voltage! Suitable for model railways of all gauges, also for car-racing tracks. Input voltage: 16 V. A.C., current input 1,5 A with maximum charge, output voltage: approx. 15 V. — up to 30 mini-lamps of 16 V. and 0,05 A can be connected!

5/7001 Choke-coil L 11 — to be included into the operating current supply line in order to avoid a short circuit of the lighting-voltage through the transformer.

5/7002 Coupling condenser for transmitting the lighting-voltage over all the isolating points.



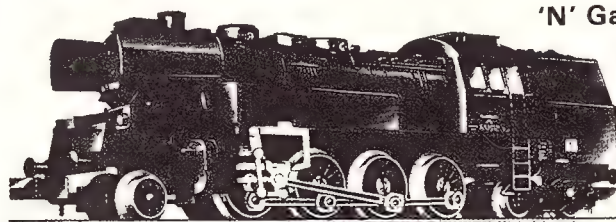
'N' Gauge.



5/4106 Model of the Diesel engine T 449 of CSD

Axle arrangement B'B', length: 110 mms. Exact make of all details, colours and inscriptions. Both bogies are driven. Great tractive power by help of lead ballast.

'N' Gauge.



5/4103 Model of the passenger train tender engine BR 65 of the DR

Axle arrangement 1'D2', length: 110 mms. Exact make of all details, colours and inscriptions. All pairs of wheels are driven. Great tractive power by help of lead ballast.

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TASMANIA: The Model Shop, Hobart.

N.S.W.: Alice's Hobby Shop, Merrylands — Casula Hobbies — Green Hills Camera Centre, East Maitland — Keith Hudsons Modellers World — Kid's Things, Fairy Meadow — Railmail, P.O. Box 152, Wellington — Searle's, Chatswood — Toyman Imports, Yennora — Hoopers Toys, Matraville — Model railway Centre, Miranda — Micro Models, Hornsby — Mansfield Hobbies, Waitara.

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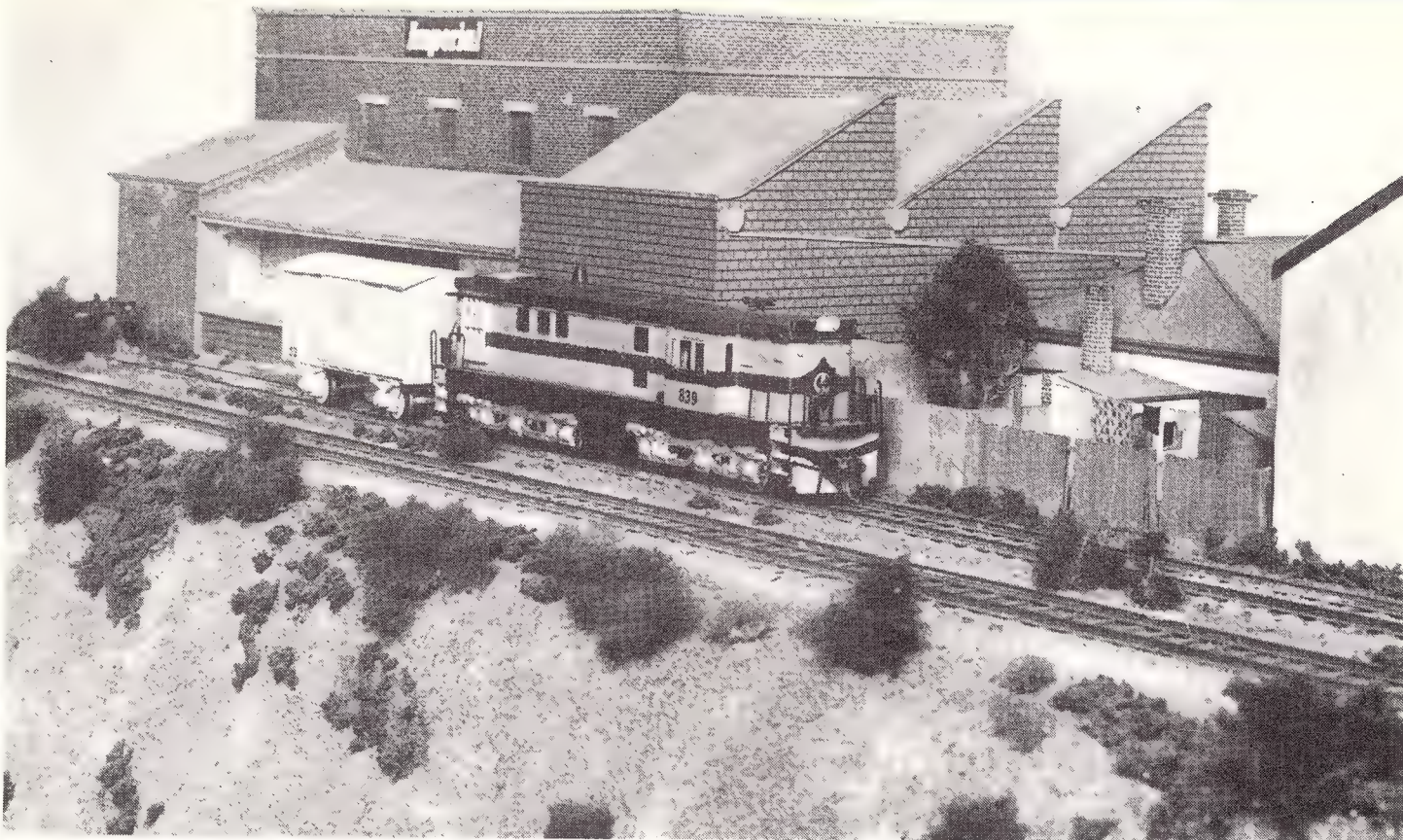
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Phone: 223 6279

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Perth.
Phone: 321 2422

QUEENSLAND

J & M Miller,
Andrew House,
Cnr. Wickham Tce. & Wharf St.,
Brisbane.
Phone: 221 3854



839 prepared to leave the DWF alongside the unloading platform at the Imperial factory.

LOCAL FREIGHT AT TAGGARTS HILL

An ABLO yarn by Roger Wheeler.

Local freight number 320 departed Southport, the main terminus for the Moping Branch Railway at 5.26am and had already worked through Yellowstone Ridge and Longdale

where we found it at 8.10am about ready to depart for Taggarts Hill. The diesel powered freight with Alco 839 up front moved forward to take the mainline out of Longdale. On

clearing the yard the throttle was opened to tackle the grades up to the summit two miles away. The line's speed limit for a local freight is 30mph with a restriction to 20mph over all

Later in the shunting routine 839's are about to add the brake and two vans to the rear of the train in the loop.

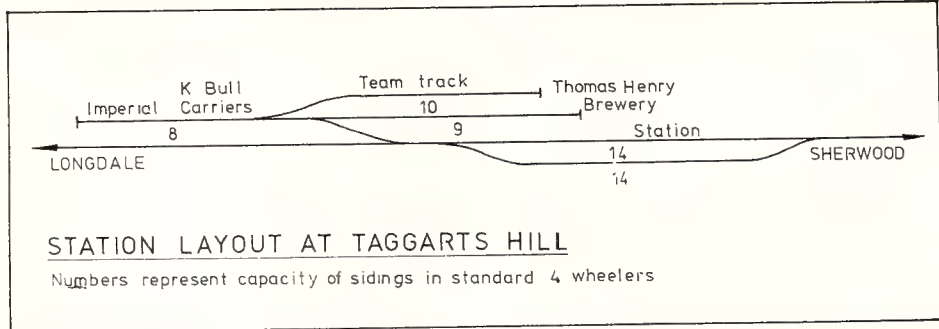


wooden bridges and as our load is 10 tons under the load limit we should be able to maintain a steady pace.

The throttle was cut back as we passed the summit and on checking the time the Guard predicted an arrival at Taggarts at 8.19am which gave 9 minutes to clear the main line for a cross with the passenger no. 323. which was due at Taggarts at 8.28am. Our pace slowed as we prepared to cross the 1200ft. wooden trestle at 20mph and then approached Taggarts. The Station Master was on duty for the passenger and had unlocked the point to the passing track and waved us in for an 8.19am arrival as predicted. At 8.28am a single 75 class railcar ground to a halt at Taggarts Hill and was soon on its way to Southport after exchanging parcels and picking up passengers.

From the waybill cards we knew that one empty DWF four wheeled louver van was to be set out at the Imperial Foods factory and two loaded bogie vehicles consigned from the Eastern Districts Farmers' Co-op to Rivertown were to be picked up. As the DWF was next to the loco the train was broken immediately behind the DWF and engine and van moved forward onto the main. When the SM had reset the point 839 pushed the van down the main toward the other end of the yard where the SM unlocked the throwbar and set up the line for the Imperial siding. A wave of the arms brought the engine and van down the track. When the empty van was lined up with the Imperial loading bay the loco was waved to a stop. With the loco uncoupled and the DWF handbrake set the SM unlocked the Team Track which contained the two bogie vehicles. The loco moved forward and coupled to the two cars then their handbrakes were released and the consist backed towards the Imperial factory.

The SM reset the line to the main and



locked the throwbar then waved the engine and vans forward onto the main where they were halted alongside the station platform. Because the two vans were consigned to Rivertown the Guard wanted them marshalled with the other vehicles for that station just ahead of the brakevan. The two vans were left on the main while the loco backed up, the point was changed and 839 moved forward onto the brakevan. The loco and brake reversed onto the main, the point was reset then the brake was pushed up to the two vans. The procedure was then repeated to place the vans and brake at the rear of the remainder of the train which had been left on the passing siding.

The loco ran around the train and coupled to the front then all couplers were inspected and the driver did a brake test. With permission from Train Control the train departed at 9.27am being 60 tons heavier and 3 longer but still within the limits for the next section to Sherwood.

These events actually occurred during an operating night on the Moping Branch Railway using a 6:1 fast clock and the Ablo waybill cards to calculate train loads and lengths. The

shunting can be more complicated if there are already wagons at Imperial as this reduces the headroom for shunting the Team Track which is used by all customers who do not have their own loading sheds or who wish to load directly into their road trucks. This often means that the engine must first remove the wagons from Imperial to allow enough room for his shunts to the team track and then replace these wagons before leaving. This type of track layout introduces some interesting manoeuvres for a freight train operator who aims to do his work in the least number of moves. When coming from Longdale he will marshal his train with Imperial loading behind the engine and all other Taggarts loading just ahead of the brake and other destinations in between. The positions are reversed if he approaches from Sherwood as this will enable him to shunt with the least moves and problems due to other vehicles in the yard. He should also place the vehicles in their correct positions even if this means removing other wagons and replacing them afterward. But this is the pleasure of operating realistically.

MODIFICATION TO WORKSHOP 5 SFX/SBX BOGIES

A problem which has shown up with age in the Workshop 5 bogies is that if the cars are left on the track between running sessions, the bogies tend to sag under the weight of the cars. This happens especially in hot weather and the long wheelbase units are so badly affected that they have to be withdrawn from traffic, stuck under the hot water tap and straightened out.

Described below is the method I have used to stiffen up the whole bogie during assembly which virtually eliminates sagging and warping.

(1) Cut four pieces of 1/16" x 1/64" brass strip into 50 mm lengths, then glue same along the inside of the bogie side frames (A). I used a superglue type adhesive.

(2) File recesses in bogie bolster 1 mm x 3 mm (D).

(3) Assemble bogies as per W.5 instructions.

(4) Cut eight pieces of angle brass 1/16" x 1/16" x 1/64" approximately 21 mm long. This length will vary between 18 mm and 22 mm depending on the type of wheels fitted.

(5) Glue the two pieces of brass angle across

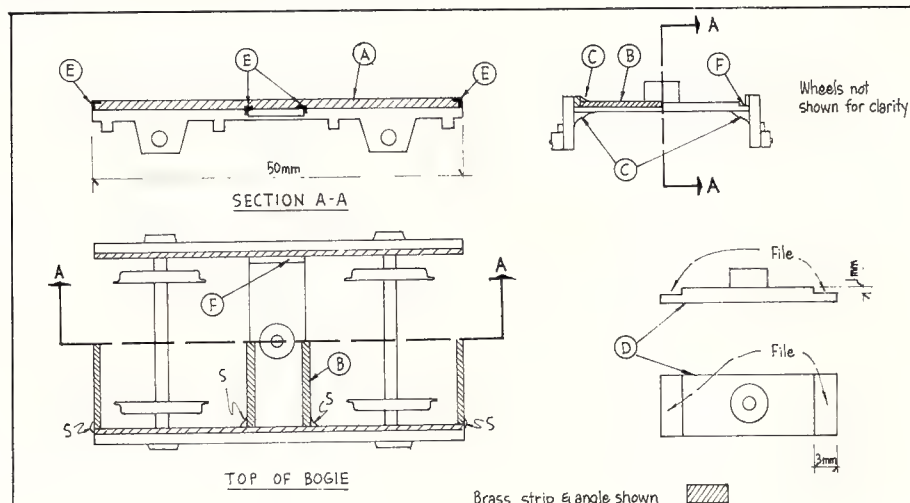
the bolster and solder in position, then solder in the two angle pieces to the ends (Angle brass shown (B). Direction of angle shown (E). Solder points shown "S".) Note: when about to solder, use a very hot iron with a small tip and do the job as quickly as possible thus allowing a minimum of heat to be transferred to the plastic castings.

(6) Run the Superglue around the interface between the brass and the plastic castings in the soldered areas.

(7) Lastly, build up a web between bolster and sideframes using slow set (24 hr.) Araldite (C).

For those of you who have already assembled the bogies the only difference in the above method is instead of step (2):— File or cut a slot in the bolster where it joins the sideframe so that the brass strip when in position sits flush with the top of the sideframe (F). Continue to step (4).

Neil Graham



MODIFICATION TO WORKSHOP 5 SFX/SBX CAR BOGIES

N.S.W. "Cowboy Cars"

Whilst repainting and detailing some Tyco 1890 coaches for my newly commenced "Virginia & Truckee R.R." I realised that these delightful little models were very similar, tho' albeit a trifle short, to the Commission's old wooden bodied cars. Conversion is very simple. First remove the body from the underframe by pressing the lugs at each end, under the bogie, through locating holes. Remove cardboard insert from behind windows — retain. Using a good quality camel-hair brush (I used a Rowney No. 11) repaint whole body in Humbrol Tuscan Red, matt finish. A second coat may be necessary to cover the lettering. Put to one side to dry.

Using one of the card inserts as a template cut out glazing for windows — the clear top of a shirt box is ideal. Now, carefully cut out the simulated figures from the card insert, leaving the blinds and balance of surrounding card. Slip strip of glazing into slots behind windows, secure with a dab or two of polystyrene cement, and then place card insert behind glazing. Glue in like manner.

A false floor must be cut from stout card so that it fits snugly inside coach body. Then carve seats from balsa or similar — each coach requires ten, double seats and two single seats each side. These are not necessary but look good, even if coaches are not provided with lights. Paint seats black and locate on false floor, then glue.

When body is dry paint hand grabs, window frames and balcony end rails in either Humbrol Bronze or Copper, and roof in matt dark grey. Reassemble false floor and body to underframe, and you have a near perfect "Cowboy Coach" for less than \$5. In conclusion, these little coaches are very free running and my Rivarossi "Genoa" will haul ten without trace of slip, even on a slight grade. Of course, though not suiting the purist, I should imagine five or six coaches behind a D334 or an S636 would be a nice reminder of the early 1920's.

Rod Paxton.

Height of Commercial Turnouts

For the modeller who decides turnout-building is not for him — or where a commercial turnout is preferred because of a need to save time — then incorporating the turnout into scratch-built simple track is easy. The first thing to do is to establish the differences in heights of the respective pieces of track, from the bottom of the sleepers to the top of the rail. This is the difference that must be taken up by different road-bed thicknesses. Let's assume the turnout is thicker than the simple track (simple track being my term for "any track that isn't a turnout or crossing" — in other words, normally plain, ordinary track though it may have check/guard rails or be on a bridge or level crossing). The alternatives are as follows.

Lower the turnout

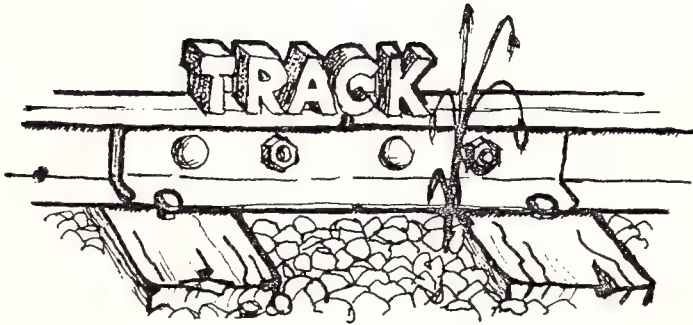
The best option, because it affects only the turnout and doesn't change the grade, is to reduce the thickness of the track-base. Suppose you're using the construction mentioned in TRACK Part 1 (Issue No 61): 19 mm chipboard has Caneite glued on top of it, using PVA adhesive, and 3 mm cork sheet (the "roadbed" — cheaply obtainable in the form of gasket material from automotive engineering suppliers) is glued on to the Caneite with a sound-deadening rubber-based adhesive such as Pabco Vinylfix No 80. Mark where the turnout will be on the existing roadbed. Cut out the cork and Caneite right down to the chipboard, leaving an "excavation" where the turnout will be. Scrape the chipboard surface to ensure that it is free from lumps and humps. Now mark on a new piece of Caneite, the outline of the turnout — preferably using the piece of cork that was removed during the "excavations". With a coarse rasp or Stanley Surform remove the top layers of Caneite to the extent that the turnout is thicker than the simple track. A vernier caliper is convenient for this purpose. Cut a new piece of cork to the required outline and place it, the Caneite and the turnout into the excavation to check for alignment against the simple track. If in doubt, make the Caneite under the turnout thinner than it should be — you can always lift it out while the glue is drying and insert manila card shims to increase the thickness. (Sometimes, of course, the difference in height can be achieved simply by buying cork of suitably different thickness). Finally, if you intend screwing the Caneite down (not a bad idea under a turnout, for obvious reasons), drill from under the baseboard to fit eight course woodscrews up into the Caneite, then glue the cork to the Caneite. Weight the cork down while the glue sets.

Raise the Simple Track

With this alternative, a length of balsa of suitable thickness is planed into a wedge shape to traverse from one height to the other. Usually a metre length is sufficient. First tape to your bench a piece of corrugated card (from a carton) that is longer and wider than the balsa. Don't flatten corners from the carton — if the card is too short, cut it up and butt the pieces carefully to add up to a metre. Next attach the balsa to the cardboard with double-sided tape. Plane the balsa with a very small "bite" on the blade, or use a Sandvik Abrader to form the gradient (it's a marvellous wood-working tool — the "401/normal (165)" is best). Do not make the gradient even in slope throughout its length. Make the slope shallower at each end than in the middle, to obtain a "vertical transition" from one height to the other. When satisfied with the slope, sand lightly with fine abrasive paper on a sanding block and remove the balsa. The reason for the corrugated card is that it can be destroyed if you have difficulty removing the double-sided tape, and it won't damage your plane if the plane slips off the balsa. If the balsa ramp needs to be installed on a curve, cut it into segments to fit the required curvature.

Matching Different Rail Sizes

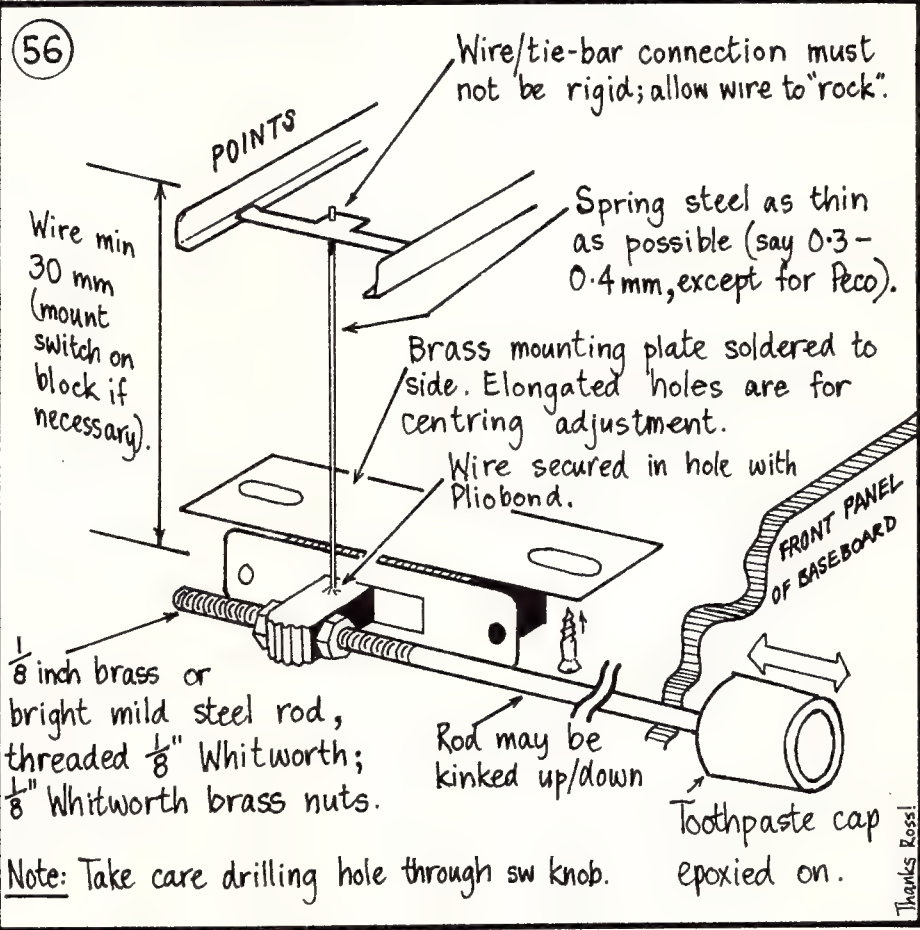
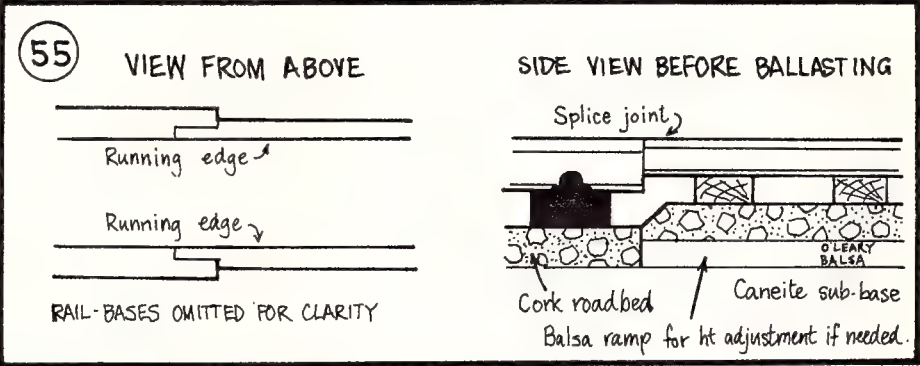
If the rail sizes are different on the simple track and the turnout, a spliced (overlapping) joint is made at the end of each running rail of the turnout. These joints are preferably soldered (resin flux only, e.g. resin-core) or glued with epoxy adhesive, so that both the tops and inner



FIVE

by Clive Huggan

The modeller who buys turnouts will find something of interest in this Part of "Track", which covers blending of commercial turnouts into scratch-built track, joining tracks of different height or rail-size, and methods of actuating turnouts. For explanations of terminology, refer to Fig 29 on page 17 of the May/June 1978 issue of AMRM.



TRACK COMPONENTS

Unavailability of 1.4 mm/Code 55 rail in Australia has been a deterrent to HO modellers wanting to build their own track with scale-sized rail. Now Aspect Models have a range of Railcraft products, including Code 55 weathered rail. Details are shown in Aspect Models' advertisements in AMRM. Of course, other model shops sell larger and slightly coarser rail such as Peco and Shinohara.

It has also been difficult to obtain Goodyear Pliobond adhesive, the only heat-fixed flexible adhesive that is reliable for rail-fixing over many years. Pliobond is also available from Aspect Models, and from McBee's.

edges of the different-sized rails are aligned. Then, about 30 mm from the spliced joints, the newly-added rails are joined to the simple track with rail-joiners so that the turnout can be removed later when necessary. If you prefer to do without rail-joiners, a gap of 0.5 mm is simply left here. The main thing is to align the rails perfectly end-on, avoiding a "kink" at the gap. See Fig 55.

Actuating the Turnout

I've already mentioned (in Issue No 91) that I believe we too often use forces grossly in excess of the amount necessary to throw the points. This may well cause "spreading" of the stock rails, and mis-alignment or failure of the tie-bar, that lead to derailments — especially as time goes on. Only Peco turnouts, with their snap-locking mechanism, need throwing forces much greater than the desirable force, which is equivalent to the weight of a 20 cent piece. Consequently, regardless of the method of powering the turnout, I strongly recommend a length of thin spring-steel wire, 0.3 — 0.4 mm in diameter and at least 30 mm long being used as the last link between the tie-bar and the actuating mechanism. Above all, the "omega loop" should be avoided; rarely is the springing force suitable, and usually some force is also applied sideways, causing distortion to the tie-bar.

Three types of turnout actuation, each suited to individual preferences and to locations on the layout, are recommended.

Slide-switches

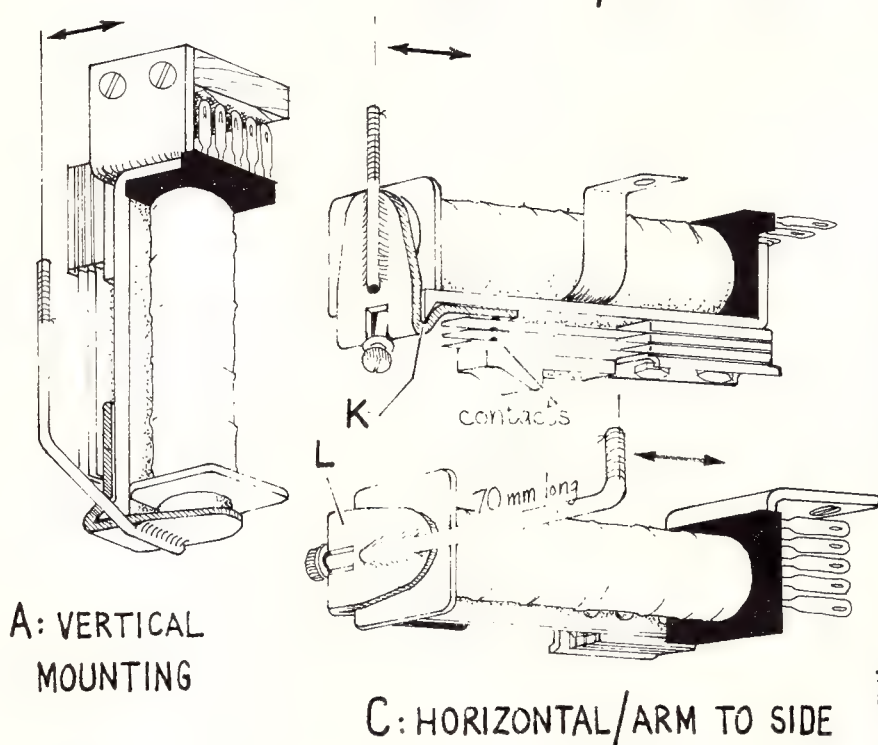
A cheap two-position slide-switch, available for about 40 cents from model and electronic shops, is at the core of the simplest reliable method I know of. The slide-switch itself provides positive locking of the points, and very reliable electrical switching of polarity of the crossing. See Fig 56. The actuation of the tie-bar is from underneath, via the thin spring steel wire mentioned earlier — it reduces the slide-switch's 5 mm "throw" down to the tie-bar throw without excessive force. Note that the wire must be free to flex where it meets the tie-bar; it mustn't be a fixed (rigid) joint.

The rod that actuates the slide-switch needs to be threaded so that it can be dismantled for alterations or maintenance. This is achieved with a button die (1/8" Whitworth for 1/8 inch rod) held in a die stock. Both are obtainable from tool shops, engineering suppliers such as McPhersons, and some hardware stores — a stock costs from \$1.50 to \$5 (cheap ones are OK) and the die about \$3.

Using the die is simple — it does all the work once you first feed it on to the rod. Ease it on by turning the die-stock gently and s-l-o-w-l-y, and after about three turns, back the die off and clean out any chips, using an old toothbrush. Wind it back on, turn slowly once it starts to cut again, and back off as soon as chips start to increase the resistance (or, strictly speaking, *before* they do, which is where your quickly-gained experience comes in). It's only necessary to back off completely and use the toothbrush once every five or six turns, incidentally. Above all, remember that the die is a self-feeding tool, and doesn't need pressure applied to it. Slow, sure turning is needed. It's a cinch!

(57)

B: HORIZONTAL / ARM UPWARDS



A: VERTICAL MOUNTING

C: HORIZONTAL / ARM TO SIDE

Thanks Phil!

Brackets for mounting as at A and C can be sawn from the frames on which the relays come mounted.

With mounting method B, a problem is that dirt drops through the tie-bar hole into the knife-edge pivot K. A fiddly solution is to tape a sheet-plastic 'umbrella' to the activating wire — or put up with it and service it with a bike pump. Some modellers mount the relay upside down to that shown, but the contacts are then less accessible, up against the baseboard.

With mounting method C, if point-throw resistance is high, or actuating wire is too thick, moving plate L skews on knife-edge and contacts become mis-aligned.

With methods B and C, a wooden mounting block may be required to obtain the correct point throw. Each illustration shows brass rod soldered to the moving plate L, with the 0.3-0.4 mm diameter spring steel actuating wire 'lashed' on with fuse wire and epoxied. Again, a minimum length for the spring steel wire of 30 mm is recommended, to minimise throwing forces and effects of differential expansion.

Wherever possible, mount relay so that contacts will be visible from the position you huddle in when servicing them.

NOTES FOR PMG-KEY-AND-RODDING SYSTEM

All dimensions marked * in Fig 58 may be varied freely; there is no need for consistency between successive items.

All base-plates and arms are made from 1 mm brass or mild steel sheet.

All tube is 1/8 inch inside diameter ('ID'). If different size is used, it must match rod.

All rod is 1/8 inch diameter brass or bright mild steel. Do not use steel nuts on steel rod.

All threads and nuts 1/8 inch Whitworth (see text for use of taps and dies).

SEE FIG 58 SKETCHES FOR APPLICATION OF NUMBERED NOTES

Note 1: 1/8 inch brass or bright mild steel rod may be as long as about 1.5 m without intermediate support.

Note 2: Locate turnbuckle as close as possible to turnout. After locating forks on correct crank-holes (so as to convert 9 mm throw of PMG key to a little more than required point throw at end of tie-bar actuating wire), put PMG key in centre position and twist turnbuckle so that points are half-way between stock-rails. Lock-nut need only be finger-tight.

Note 3: On this component only, base may be omitted; instead, tube is coated with epoxy and pushed into hole through baseboard.

Note 4: Rodding may approach* from any angle, so angle between top arm P and bottom arm Q may be anything from 0-360°. Top arm P is parallel with turnout sleepers; bottom arm Q at right angles to rodding. Once the angle is determined, Q is soldered on to shaft (but not to tube — shaft must be free to swivel). Arm P, 0.7 mm steel wire 15 mm long, is soldered in groove sawn in top of shaft. Allow only 0.5 mm slack between arm P and top of tube to allow shaft to swivel.

Note 5: Design by C.A. Huggan; all others in Fig 58 by A. J. Nicolson/K. Loughhead.

Note 6: Top arm R is perpendicular to tie-bar when viewed from above. Rodding may approach from any angle, so angle between arms S and T may be anything from 10° to 350°, with arm T at right angles to rodding. Once the angle is determined, arms S and T are soldered together. Arm S/T swivels on shaft; arm R is fixed.

Note 7: Conventions: When PMG key is pushed away from the operator, rolling stock takes the furthest route (i.e. points move towards PMG key). Alternatively, insert a pin in the hole near the pivot of the key to convert it from a three-position (centre position unused to a two-position switch. Then the vertical position shows 'set for main-line'.

Advantages of the slide-switch are:

- * Extreme reliability.
- * Cheapness.
- * Good mechanical "locking" action within the switch.
- * Simplicity.

Disadvantages are:

- * Toothpaste caps can be hard to get if, like mine, your family loses them before the tube has been finished (moral: get there first!).
- * The turnout must be parallel to the baseboard edge. If it isn't, a bell-crank must be used and you should consider, instead, one of the two other methods.
- * The rodding can't go across baseboard joints on a portable layout without adding considerable complexity or inconvenience. In such cases, an electrically-controlled method is preferable — which leads us to the second method.

STC 3000 Electrical Relays

Electrical relays, especially the heavy-duty STC 3000 models used by Telecom Aust, are a well-known and popular means of actuating

turnouts. Several clubs sell them for under the \$1 mark. A separate power pack is used, anything from 37V to 50V AC being suitable, and the power stays on all the time that the points are thrown to the 'relay energized' position.

STC 3000 relays can be mounted several ways — see Fig 57. Advantages for turnout actuation (they have many other uses, of course) are as follows:

- * Fairly high reliability, because of their industrial-type construction standards. I'm not sure of reliability after several years' use — perhaps a reader who does have such experience could comment.
- * Cheapness, especially when compared with commercial switch machines.
- * Convenience and reliability across baseboard joints on portable layouts, and for detachable control panels if they are preferred.
- * Turnout actuating controls (e.g. PMG keys, push-button switches or "pencil probes") can be used on a control panel in the exact place required by the track diagram, because there is no mechanical linkage actuating the relay.

The last advantage can be deceptive, however; many serious operators prefer to keep turnout actuating switches off track diagrams, because they prefer mounting them at the edge of the layout, right next to the turnout or yard, to improve the operator's involvement in "walk-around" control. Some people, however, prefer the "all-on-one-board" concept, with turnout actuation mixed in with cab control — so it boils down to individual choice.

Disadvantages of STC 3000 relays are:

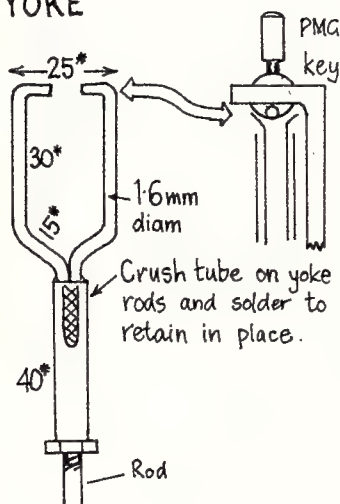
- * Sometimes relays are hard to fit near baseboard bearers — not an insuperable problem but a confounded nuisance during installation.
- * Far more wiring under the baseboard; this may be an advantage if you like wiring for its own sake, but it does decrease reliability and complicate fault-finding. If you want to minimize wiring under the baseboard, then the third method will have special attraction.
- * They make a loud 'clack' sound when operated.

PMG Keys and Rodding

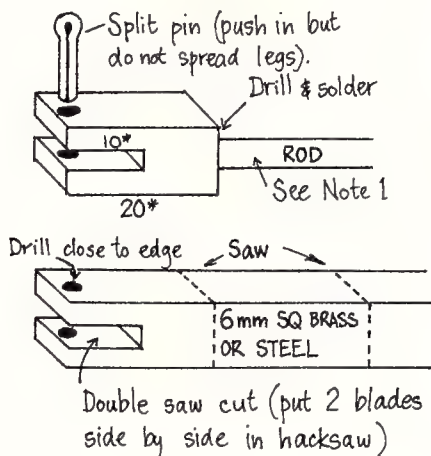
The third method lacks the complete

58 See separate notes where indicated and for material details

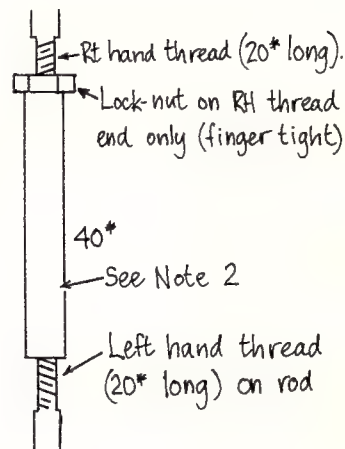
A: YOKE



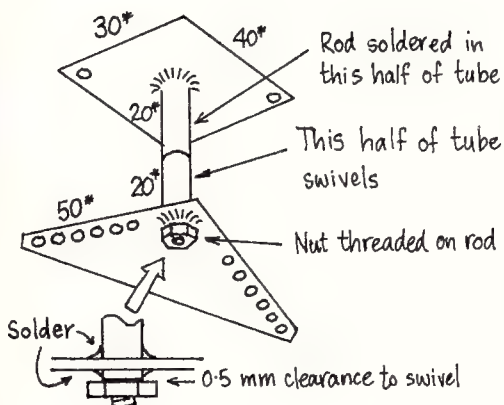
B: ROD & FORK



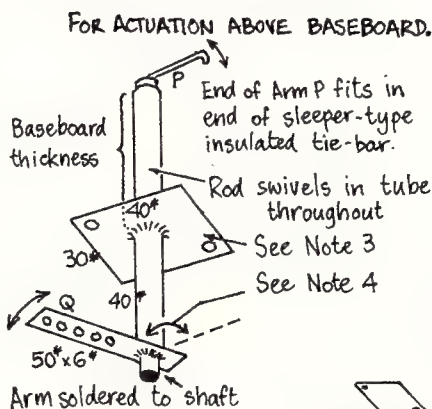
C: TURNBUCKLE



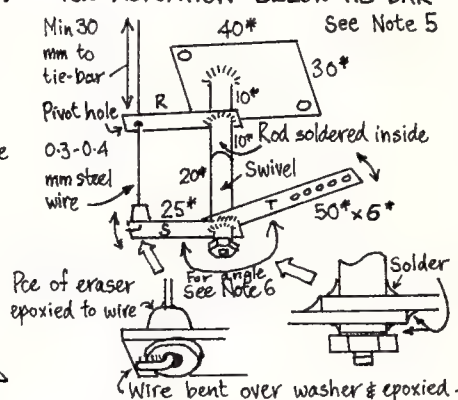
D: CRANK



E: POINT ACTUATORS



FOR ACTUATION BELOW TIE-BAR



F: GENERAL ARRANGEMENT



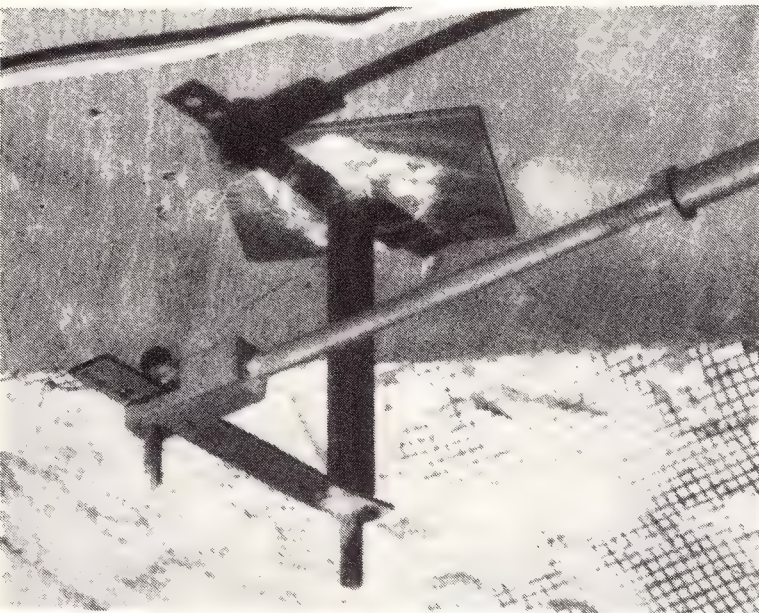


Fig. 59. Point actuator — Type 1, for actuating the points above the baseboard. Turnbuckle is at right of photo.

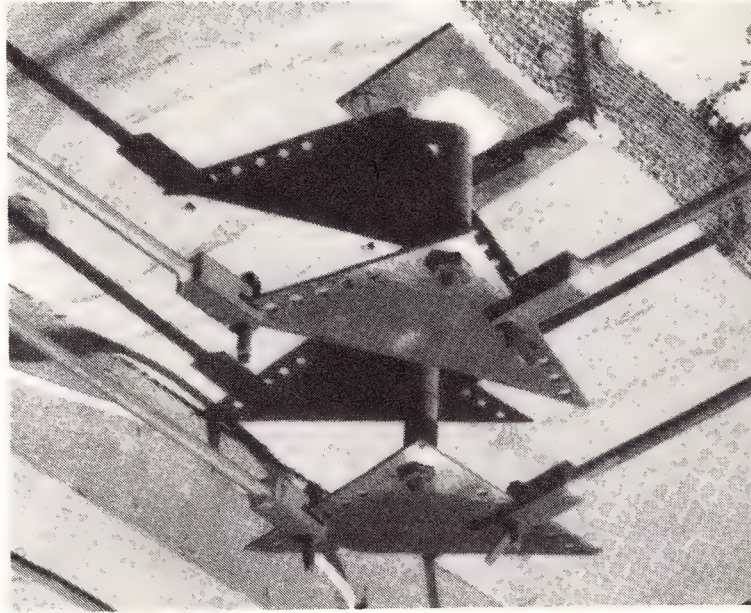


Fig. 60. Cranks. Note different holes used for forks (determined during initial setting up, depending on desired point throw and throws in rodding system).

simplicity of the slide-switch method, but is remarkably simple and quick to construct all the same. Figs 58 to 61 show the details. Choice of brass or bright mild steel depends on your budget. Parts for say twenty turnouts can be belted out in an afternoon, because the cranks and mounting bases are cut roughly with tin snips; the crank holes are drilled on spacings determined "by eye" (with several cranks sandwiched in a vice); and sawing of the rod and square material is "rough-and-ready". This crudity in dimensions is overcome by the turnbuckle and the crank holes, which allow a high degree of precision in installation and adjustment. A good heavy soldering iron, say 100 watts, or a gas-heated iron such as the one with the Ronson blow-torch, is needed. Acid flux is used, not resin or resin-core. Bar solder, obtainable cheaply from most hardware stores or O. T. Lempriere Ltd, is best.

In addition to the die and die-stock, a tap wrench (similar price) and taps (taper and straight, under \$1 each) are needed. A left-hand threaded die and tap are also necessary. Taps are used the same way as dies (taper taps first, then straight) but they will break if roughly handled, so some care is needed. Nevertheless there is no "secret skill" to tapping — anyone can do it.

The PMG-key-and-rodding method is incredibly reliable. It was devised in the early '60s by John Nicolson and Kev Loughhead, since when it has operated on Kev's very large and much-used home layout in the ABLO group, and intermittently on John's ex-Adelaide University Modellers' Club portable layout. John's layout has been humped, after frequent exhibition work, from S.A. to the tropics near Cairns, and to its present location in freezing Canberra, requiring only turnbuckle adjustment.

Here are the advantages of this method:

- * Extreme reliability.
- * Almost total freedom from maintenance. Any baseboard movement over the years is very easily adjusted out with the turnbuckles. Expansion and contraction with temperature changes are taken up by the thin steel wire that actuates the tie-bar of the turnout.
- * Cheapness.
- * Ruggedness.
- * Far less wiring is needed under the baseboard than with other methods — only two wires per turnout (to change the polarity of the crossing) are used between the control panel and the turnout.
- * Because the rodding is easily released by removing the split pins, alterations such as for scenery, baseboard or track changes are fairly simple — and the mechanism does not need adjusting when the rodding is replaced. This can

be convenient in the early stages of layout construction.

- * There is plenty of room above the rodding, immediately below the baseboard, for wiring.
- * Rodding can approach the turnout from any direction, avoiding limitations mentioned for slide-switches and relays.

Disadvantages are:

- * The PMG keys cannot normally be mounted on the track diagram if this is desired. They are best suited to vertical mounting, singly or in banks, at the edge of the layout.
- * Rodding can't go across joints of portable baseboards without adding complexity.

Incidentally, readers of the British magazine "Model Railways" will recall an outwardly similar method in the February 1977 issue. Comparison between that article and Fig 58 will show that the Nicolson/Loughhead construction is very much simpler, is easier to adjust and interferes less with wiring.

I should probably apologize for any over-enthusiasm for the PMG-key-and-rodding method. Part of the reason is that I have not had extensive personal experience with the other two methods (unlike all other techniques and methods described in the TRACK series, which are firmly based on practical experience). But part of the reason is that it does have so much in its favour. For example, there are as many contacts on the PMG keys as most STC 3000 relays, so auxiliary wiring is practicable — and all of it originating at the baseboard edge, with good accessibility. One such application is "cascade" wiring, in which a PMG key being thrown feeds power to the next turnout, and so on, so that yard leads (for example) do not need to be divided into excessive numbers of electrical sections. This is also achievable with relays, but under the baseboard, not at the baseboard edge. Of course, recent advances in the application of electronics to railway modelling will probably mean that, in about five years, reliable carrier control will do away with the need for electrical sections. That will bring extensive changes in our requirements for turnout control, no matter what method we now use. But that is a different story

How can I best summarize the methods discussed? The slide-switch method uses *simple* mechanical actuation with simple electrical switching under the turnout. The STC 3000 relay method uses electrical actuation, with capacity for complex electrical switching that is likewise under the turnout. The PMG-key-and-rodding method uses *adaptable* mechanical actuation, with capacity for complex electrical switching at the edge of the baseboard. Each method is reliable, easily maintained and inexpensive. Importantly, electrical switching is achieved through contacts manufactured

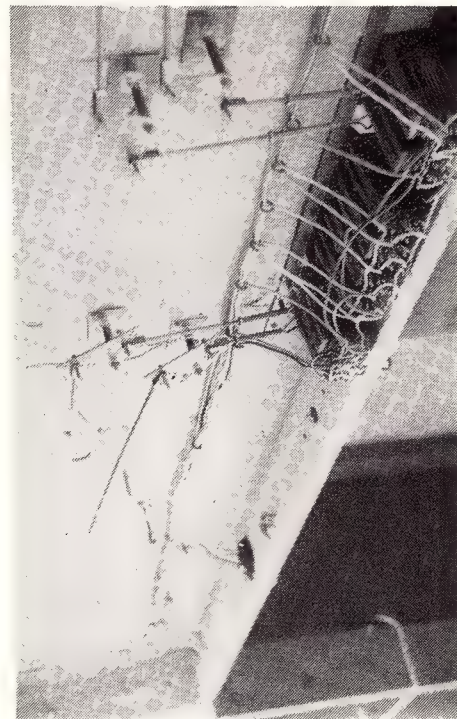


Fig. 61. Wiring and rodding from PMG keys.

for high reliability. The choice, then, depends on such factors as the position of the turnout, requirements for supplementary wiring, and simply personal preference for the skills involved in the preferred construction. So, again, we arrive at variety and freedom of choice — factors which add so much to the good things about our hobby.

Next: alternative points, pivots and tie-bars.

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A CASE FOR DIESEL PHOTOGRAPHY

Some pointers on modern day train photography by Leon Oberg.

The large number of rail enthusiasts who put their camera down when diesels hove into view never fails to amaze me.

Cries such as "diesels. Ugh!" and "Why waste film", actually erupt from many lineside railfans, particularly those motorcading steam-hauled excursions.

For the majority of enthusiasts to actually take the trouble to spend a few hours, a day, or in fact a whole long weekend beside the high-iron with the sole purpose of photograph-

Medium tele-lens (in this case a 135mm) captures the action of particularly the exhaust haze in this picture of NSWPTC units 4202 and 4881 with an empty south-bound wheat train nearing Mittagong. With tele-lenses, a bunch-up will usually become evident. Let the subject come as far into the viewfinder as possible to keep this at a minimum.

ing diesels (or electrics), is very rare indeed.

A friend, Peter Watts, and I were approached by a NSW PTC policeman in Darling Harbour goods yard a few years ago and he could not at first believe that anyone actually would want to go around photographing diesel yard shunters (73-class). After looking through our station wagon and finding bags of camera gear (all fortunately used-looking) and reams of railway (diesel) pictures, he quickly woke up that people actually DO go around picturing diesels!

A similar situation happened to me while sitting between East Maitland Cemetery and the four track Northern line. In rolled a police car and gazed in amazement that someone would carry around a few boxes of diesel pictures.

Peter Watts was sitting quietly (reading an issue of Trains Magazine as it happened)



beside Bethungra spiral on the NSW main south when a policeman stopped in to investigate 'someone loitering'. It transpired that a passing ganger riding a quadcycle had earlier reported seeing 'someone loitering', so Cootamundra railway staff called the police!

And stories like this can go on, just like the day a couple of friends and I were standing around in 45 deg. C heat on the edge of the Nullabor waiting for an 'Indian Pacific' to photograph. A passing ganger looked at our battery of tripods, cameras and so on and simply shook his head and mused "why aren't you cooling it off in the pub!"

Yes dear reader, Why?

It has long been my contention that diesel photography can be as rewarding as steam. One simply attacks diesel photography another way. As far as I am concerned, one has to make the location enhance the train when capturing





Above. Another tele-lens shot, this time at 200mm of Australian Iron & Steel's Bo-Bo unit D27 working deep inside the plant. This lens has allowed penetration of the scene and the bunch-up of the background has brought the full impact of the rugged industrial scene.

Below. Again a 135mm medium tele was used to capture this neat trailing shot of double A&S Bo-Bo D-class units, Nos 42 and 41 with a ballast train near Oak Flats. The high angle of this location removes excessive ultra-violet light, keeps the poles clear of the subject and the result has a pleasing un-cluttered diagonal. It was misting lightly at the time, which has provided a more even exposure all-over.



diesels, rather than allowing the train to enhance the location as is the case (generally speaking) with steam.

Of course, locations such as Victoria's Ingliston bank, or the Adelaide Hills in South Australia, or five-mile bank near Coolalie, NSW and a host of others can enhance both steam and diesel traction.

The choice of lenses is more important with diesels too. Generally, if the lineside photographer has (1) found a well-lit location on an up grade; (2) clips on a medium telephone lens (not too strong — say one in the 100mm to 135mm range); (3) eliminated nuisance poles with his angle (hard to do in many locations I know, but usually possible) and (4) manages to capture a train coming along with its headlight on, the result should be pretty good, assuming the film is exposed correctly.

Because the picture will be tighter than normal, through the use of the telephoto lens, it will also show a distinct exhaust haze (something one can rarely capture with a standard type lens). In addition, the obviously decent action result will be further enhanced by the headlight as it will instantly give the scene — the picture in fact, a sense of urgency. It will help to maintain interest if you like.

But how many photographers really take the trouble to seek out prime locations. How many enthusiasts feel the walk of some miles is worth a good diesel (or for that matter, steam) picture? How many enthusiasts simply shoot their pictures from near where their car stops, or from the most convenient over-bridge, treating poles, long grass or severely black-fronted locomotives (which in most cases merge with some equally dark lineside tree or shadow) a regular thing?

But some actually **DO** take the trouble, and these are the slowly growing number of specialists who are recording expertly today's history as it happens.



Above. Generally speaking, enthusiasts are reluctant to bring people into their pictures. What can be deader than a picture of a locomotive just sitting in a scene, such as a depot, or a station. Put a figure into that same picture and instantly you have a picture with interest. This example shows a fuelman sanding Alco 4445 at Broadmeadow depot late one August evening in 1975.

Below. A case of striking while the trains run! Who would have thought this 1200-class set working the Up Riverina Express would be withdrawn from active service soon after this picture was made at Gunning in February 1975? It pays to take a little trouble to shoot anything, it seems!





Another slightly bunched tele shot showing No. 65 Inter-capital Daylight at full cry near Towrang two years ago with EMD No. 42206 on the point. The picture is full of purpose, urgency and carries action because exhaust haze is evident, the headlight glows and the slight bunch-up has highlighted some of the rolling of the RUB-cars. Again, the poles are clear of the subject and no real distractions exist.

People who drive thousands of kilometres over periods of weeks, people who camp in the dessert, by line-side bubbling brooks, places like Border Loop, or Coolalie, or Sodwalls, or Ingliston or Gulf Bridge — the results of such efforts are immense.

Those who got in just a few years ago by spending hours in the hot sun, being eaten by flies, or dodged sleeping tiger snakes can today be justifiably proud when they haul out dozens of 10 x 8 black and whites or rich colour transparencies revealing action 40, 42 and 43 class activities (just singling out the NSWRL).

These same boys will no doubt have shots of the long scrapped accident damaged 44-class (4462, 4476 and 4478), simply due to their perseverance.

I have long looked with awe at friends' efforts at recording Queensland's 1200-class units (most of which are out of service most of the time), or pictures of ANR's NT-class units working the now closed North Australia Railway.

Even when I look back through my railway diary books I kick myself for laying the camera down when double 40-class (usually back to back) rolled by on No. 403 south freight back in 1958-1959. Why I didn't shoot more 42 and 43-class workings of the crack Sydney-Melbourne Daylight Express (as the Inter-capital Daylight was then called) I will never know. This working only really lasted until enough 44-class were available from mid 1958.

On my regular trips into Sydney, did I ever shoot the 79-class carriage shunters? Not on your life!

Even passing 'foreign' deliveries of Commonwealth-owned GM-class or Victorian 'S' units saw little real effort on my part to record the now fantastic historic scene. Instead I would shoot some steam movement and looking back at the results of these they would often be dead-pan, with no smoke at all. One could simply part the blessed thing there and it would look just as dead!

Personally, I feel that most photographers (railway) should consider themselves railway historians and we MUST record today's history well — for posterity.

Who knows how long certain workings will last. Take for instance the Tulloch 1200-class cars which saw only a short period with the Riverina Express working. How long can the A.I.S. Bo-Bo diesels last on loan to the PTC in the Wollongong area?

How many pictures exist of the SAR (now ANR) 600-class and 700-class operations on the Broken Hill to Port Pirie line, particularly pictures of them in their original paint scheme?

Rail photography can be real fun and indeed, very rewarding. What's more, the beer tastes better too after a heavy chisel

Following this article Leon Oberg will present a regular series of articles that will cover photography and the railway (modelling) enthusiast. Readers who have a particular problem are to write to Leon, via this magazine, detailing so that the photography problem and the way around it can be covered in AMRM.

A Money Saving Handy Hint

Next time you have a need to work on the loco's motor, (particularly an open type like KTM, Tri-ang, K's etc) please remember to remove the brushes. It saves damage to the brushes or brush springs.

I found out by experience — learn from my mistake.

Roger Johnson

AMRM NEWS

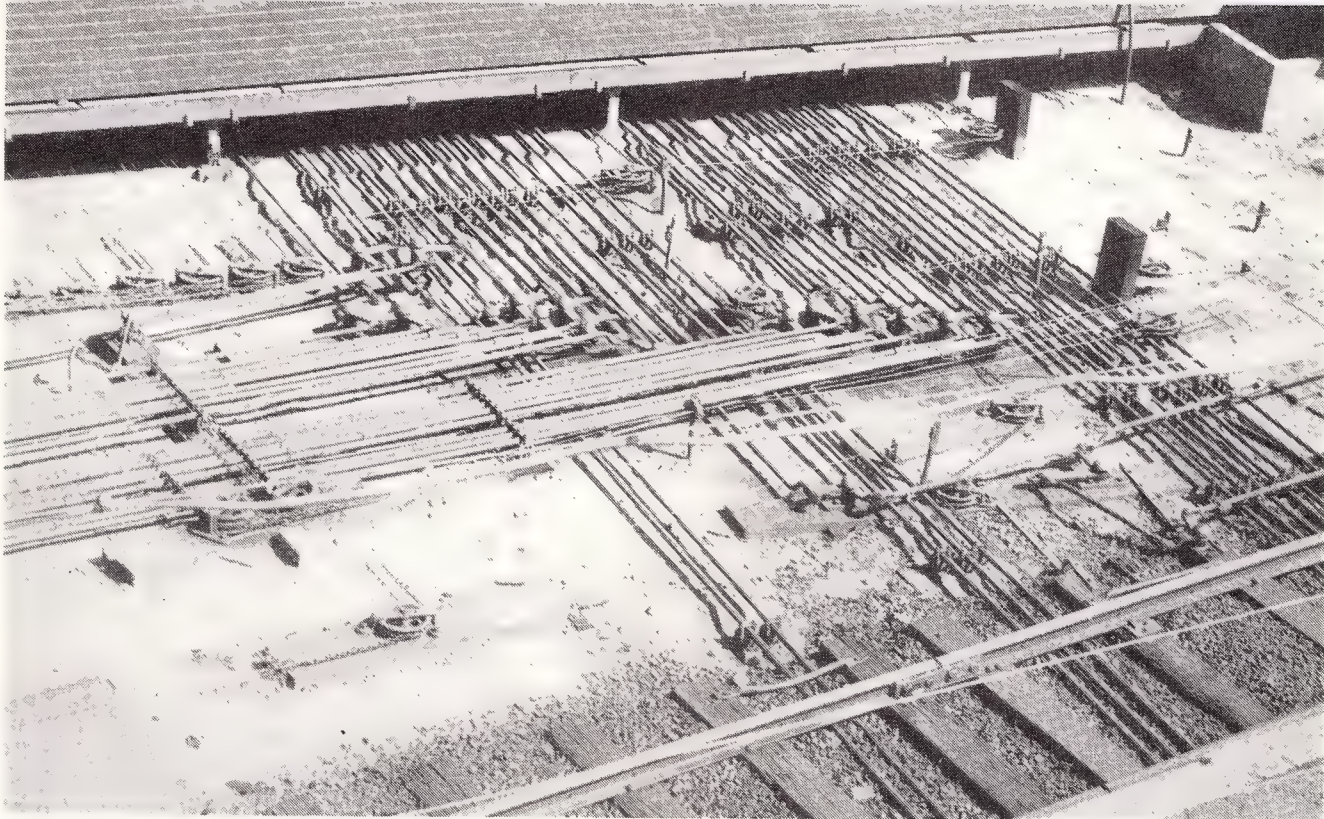
Compiled by Bob Gallagher and AMRM Staff.

One of the aims of this magazine is to keep the reader informed of new procedures and current events within the model railway hobby. This is accomplished in the first part by articles written by both readers and AMRM staff, but for the newsy items we rely upon club secretaries, manufacturers, importers and shopkeepers to supply us with accurate detail. Unfortunately, we have not been able to fully present all the news in recent times for we have not been receiving the relevant detail from the correct source, from the horses mouth that is. There have been numerous rumours floating around that seems to compound as they pass from person to person, but any thinking person would reject most of the drivel as unrealistic trash. One of the problems in recent days is that some individuals have been making comments to the trade on personal matters that need not be aired in the public forum but, when given certain connotations, have shown some individuals (unfairly one might add) to be of poor reputation. Some comments could have easily been the basis of court actions but, thankfully, the recipients of the poor-taste-comments have acted gracefully toward the rather ignorant actions of a few. This hobby is small, but it is growing, and if the trend of recent actions continue there is little doubt that many will depart for less dramatic fields, like tying knots.

There is no way AMRM or any other organisation can scotch or stop most of the tales that abound in the hobby, for gossip is a common way for information to be circulated. (There is, however, no place for bitchy tales). We at AMRM use much of the gossip to track down the originator of the story, to get at the truth and the real story. Thankfully most personalities involved in this wonderful hobby are receptive to AMRM and we can then present what should be the accurate story, although anyone, including AMRM, can be fed a tale, which usually backfires on the story-teller.

While on this theme we must once again refute the claim that this magazine is bankrupt (losing money, or whatever) and likely to fold-up at any moment.

Continued on page 50



Point and signal rodding at Box A, Perth Station, September 1978. Ross Hurley photo.

POINT RODDING

Or, Who's for going cranky? Ross Hurley

I've always been proud of my track. Done all the right things; scale rail, transitional curves, gauge widening, river gravel ballast. But I used to feel distinctly uncomfortable stepping over a III that point rodding paraphernalia when examining the real stuff. Shutting my eyes and pretending they were not there only used to bring me to earth more forcefully. I thought maybe they would go away one day.

Then along came Colin Waite's etched point rodding kit.

I reviewed it in the Nov/Dec. 1978 AMRM, but it really needed to be dealt with in more depth. So for those wishing to escape the trauma of point rodding in their sleep I offer these additional notes. The idea though is not to provide an alternative set of instructions, just some illustrated advice on techniques and jigs that can make the job easier.

One of the photographs shows the two sets that make up the kit. The blanks in the sheets are the pieces that I have used to make the section of point rodding shown in the other photographs — about half a metre in length.

The two sets are available separately. The Point Rodding Cranks Set contains 31 cranks of all the shapes used on the prototype, seven compensator sets, 40 crank bases, and about 80 pin joints and washers. The pin joints are designed to hold the rodding securely to the crank yet allow it to pivot if the modeller wishes to make it work. See figure 1.

The Point Rodding Support Frames Set contains 240 support frames and 18 base strips that can be cut to any length. See figure 2 for a sketch of how they are assembled.

You will need to supply the pins for the pivots. Get the finest you can find. I bought 'fine dressmaking pins' from my local K-Mart store. They measured 0.5 mm dia. and turned out to be plated brass which made life a mite more comfortable for my end nippers. If you model a system using round point rodding (e.g. SAR) you will also have to supply the wire for it. Model Dockyard 26 gauge nickel silver wire is fine. For systems using square rodding (e.g. NSW) 0.017" square wire is available in five metre rolls from the manufacturer. All parts have holes etched in the

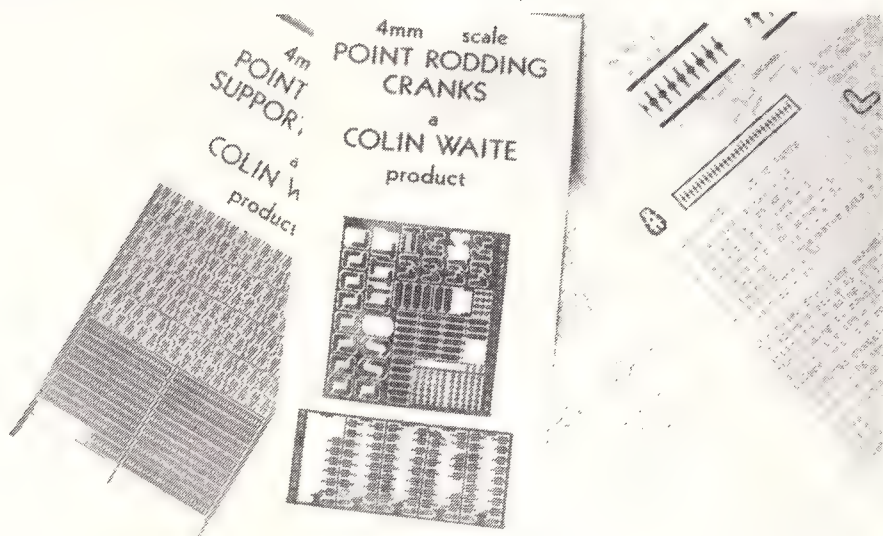
appropriate places but you will need to open them out. A number 73 drill is suitable for the 0.5 mm dia. pivot pins and a number 76 for the rodding.

As stated in the review the rodding can be made to operate. Over short distances it works very well but I foresee problems in reliable operation over long distances. Any binding or looseness would be magnified and building cranks and pivots that work perfectly for every turnout on the layout would be far too time-consuming. Unless you would rather work full time as your own Signal and Points Rodding Maintenance Engineer you had better shelve any grandiose schemes of a fully operating marshalling yard. Working the points directly from underneath with a switch

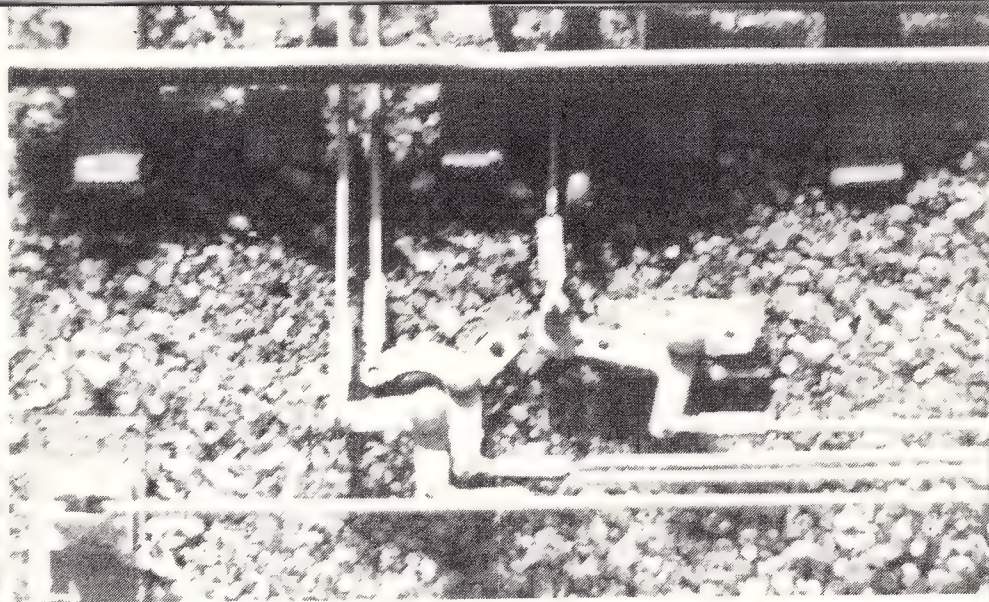
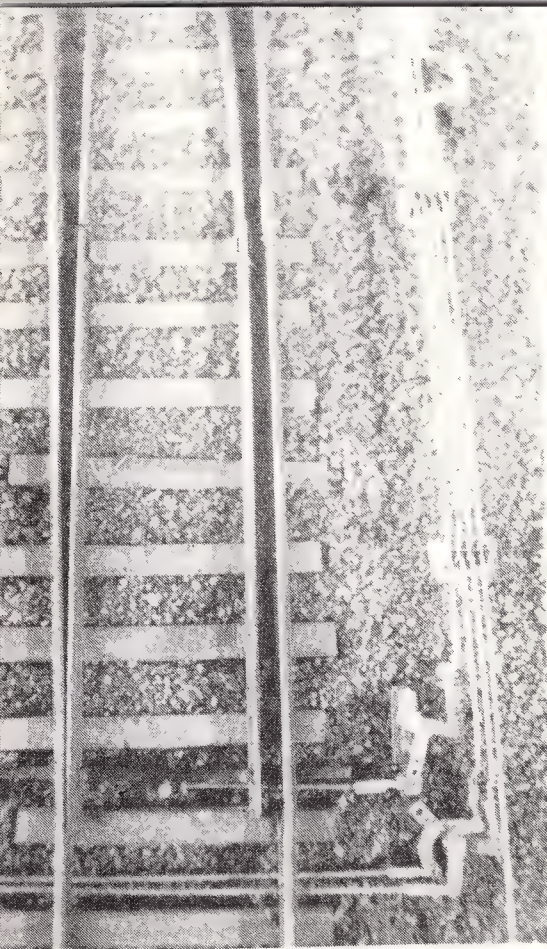
machine, relay, etc. is better insurance for long term reliability.

It seems a pity to build it all as a static assembly though. Assembling the kit according to the instructions and leaving off the last link from the tie-bar to the crank seems to me like climbing Everest and stopping on the last rise to the top because the view is fine from there. For want of hooking that last tiny link into the assembly a whole new vista of realism in model railroading could open up. The sight of cranks moving purposefully as the points shift over would be enough to keep your most nitpickity armchair critic twitching in fascination all night.

But that brings us back to the problems of the first option, operating over distances. Can



How they come, with part of the instruction sheet.



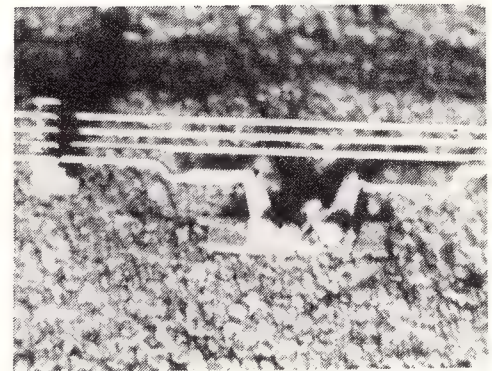
Three types of crank in use. From L to R, adjusting crank, accommodating crank and standard crank.

save much more time on installation by making just the nearest crank to each turnout, and some rodding through the first few support frames move, and build the rest as a static exhibit. The choice is yours of course anyway. See figure 3 for an illustration of the idea.

Instructions are included in each set. They also contain some prototype information that is applicable in nearly all respects to Australian use. Advice on assembly is a little brief however. I found some jigs were necessary. For instance my first support frame took me two hours to assemble successfully and demanded some elements of vocabulary I had forgotten I knew. With the jig I produced the rest in minutes — and a neater job resulted. Here are some of the techniques I used.

Cutting Components from the Sheets

This is best done with a sharp hobby knife on a hard surface. I used an Olfa knife with snap-off blades. When the blade becomes blunt it can be snapped off to reveal a new one. Or if you have latent Scottish blood like



No! That's not the photo grain you can see, it really is ballast. Enlarged a little too far it does show what a compensator set looks like.

we work out a compromise? Doing things in reverse seems a likely idea. The points are driven externally by a switch machine or however you like but the point rodding is hooked up to the tie-bar so that the points move the rodding, not vice-versa. That eliminates a lot of the need for fine adjustments.

We can simplify that still further though. Throwing a turnout pulls operator and visitors' eyes naturally to the points. It is the moving crank that is linked directly to the tie-bar that breaks our critic out into a lather. So it is not going to matter whether the rodding and cranks further away move or not. We can now

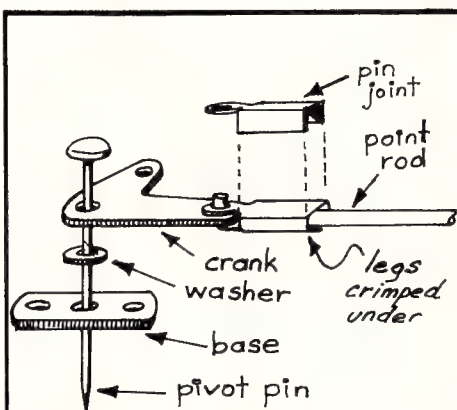


Fig. 1

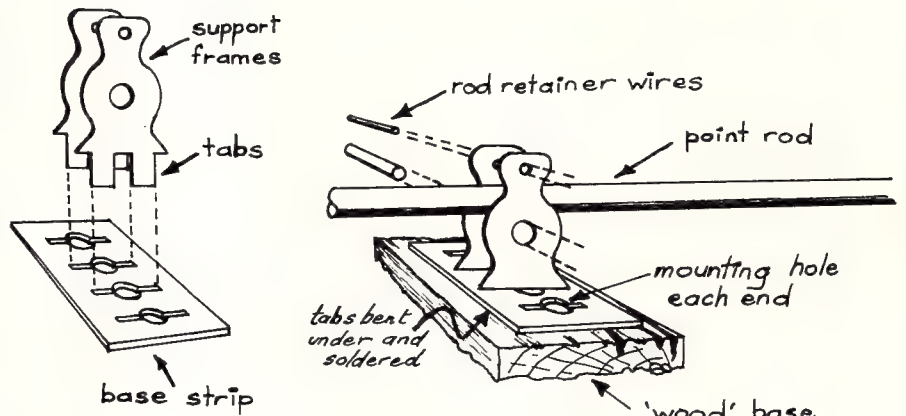
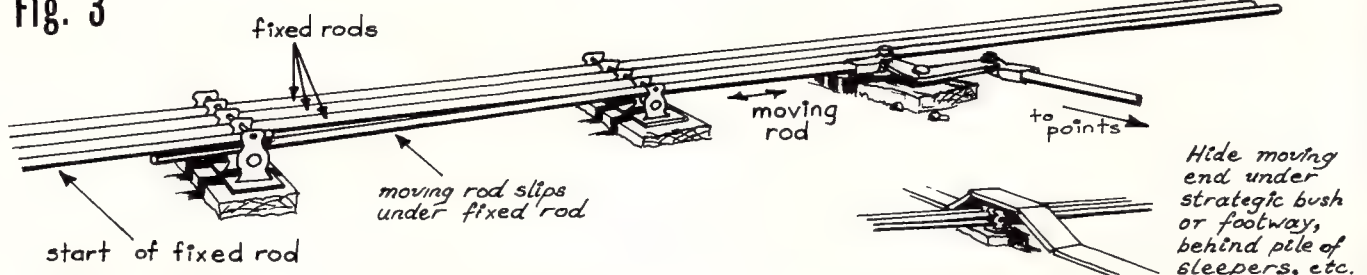


Fig. 2

Fig. 3



me you will hone it on a Handi-Stone to the point when it ceases to be any use and you are forced to snap it off and start using the next one. Open up all the holes to the required size first before cutting the pieces from the sheet.

The Support Frames

I became all thumbs when I tried to assemble the support frames. As frustration reached intolerable levels I admitted the inevitable and made a jig. It has been a long held tenet of mine (preached but never practiced) that modellers waste 30% of their modelling time by persevering long beyond the point when they should have started making a jig. Figure 4 illustrates the jig for the support frames. It must rate as one of the most time saving devices I have ever used. Maybe there is a moral there!

It is made from a piece of 1/16th inch aluminium. Any material will do so long as solder will not stick to it. The saw cuts were made with the finest blade available for my Eclipse jewellers' saw. It has about 64 teeth to the inch and makes a cut 0.010" wide. They were spaced corresponding to the slots in the support frame base strips. The depth of the cuts was carefully judged to be the length of the support frames, less the tabs.

In use the jig is held in a vice. Insert the required number of support frames into the slots, leaving the tabs protruding out the top. The base strip, cut to length, is slipped over the tabs which are bent over and soldered. Here I departed from the instructions which suggested they be glued. While the glue was setting I found the frames fell over to some odd looking angles. Soldering was quicker and neater.

To hold the rodding in place, and resemble the pulleys, short pieces of wire are pushed through the two holes in each support frame (see figure 2). Sometimes my frames were a little out of alignment when the assembly was soldered up and the wires would not go right through. The inset in figure 4 shows how I twisted the assembled support frame around in the jig before soldering and wiggled a piece of wire through all the holes to get the frames in line.

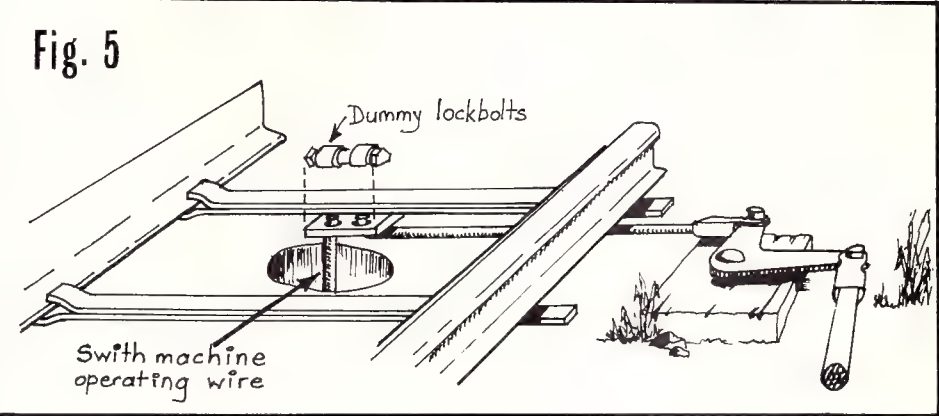
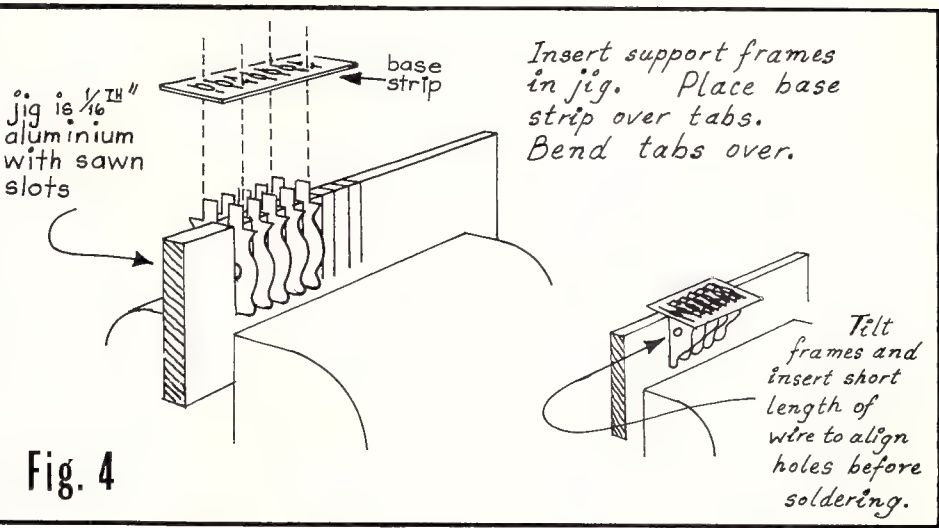
Hooking the Rodding to the Cranks

Figure 1 shows the general assembly. Clever though the design of the pin joints is there are some points that need watching. The fold lines on the legs are actually lines etched half-way through the 0.005" material. The legs take only one bend before breaking off and long-nosed pliers are too heavy an instrument to bend them with. I used tweezers.

The legs were also a fraction short and would not bend under the rodding enough to get in the way. If you are so unlucky don't go running off to get the wife. Agonising surgery is not the best way of getting your fingers apart. Acetone is a solvent (as well as being the best de-greaser prior to using ACC incidentally), or if you don't have any handy wash in warm soapy water and roll a pencil between your stuck fingers. The shear strength of ACC is low and they should come apart with a little working.

Hooking to the Turnout

The sketch at figure 5 shows how I made the connection between the point rodding and



the tie-bar on the turnout. Connecting to other types of throw-bar is just as easily done. It fits perfectly with the style of tie-bar described by Clive Huggan in Track 4 in the Jul/Aug 78 AMRM. Actually I have used one of his drawings and extended it a little to show the connection. You will find it matches the prototype

very closely.

And that has been the point of this whole exercise. Making our modelwork accurately portray the prototype can now be brought a step closer. Now let there be nobody who loses sleep over point rodding. Aarrgh! I feel the better for that.

A.N.R. MISCELLANY - 2

A.N.R. & R.O.A. Stainless Steel Passenger Cars - 1978

Code	Description	Quantity	Road Numbers
AFC	First class lounge car	7	305, 306, 307, 936, 937, 938, 939.
ARJ	First class roomette car	13	242, 243, 272, 282, 283, 940, 941, 944, 945, 973, 984, 985, 986.
ARL	First class twinette car	23	246, 248, 249, 250, 289, 291, 293, 308, 309, 310, 324, 326, 920, 921, 922, 923, 925, 947, 961, 962, 963, 990, 992.
ARM	First class deluxe twinette car	6	288, 951, 952, 953, 954, 987.
BRG	Economy class roomette car	8	168, 170, 171, 173, 175, 969, 972, 974.
BRJ	Economy class roomette car	22	213, 220, 221, 222, 223, 267, 268, 269, 270, 271, 300, 301, 302, 303, 912, 914, 915, 916, 917, 918, 919, 999.
CDF	Economy class cafeteria-club car	8	225, 226, 227, 265, 924, 928, 929, 966.
DE	Dining Car	1	176.
DF	Dining Car	11	231, 232, 233, 294, 295, 304, 927, 930, 934, 935, 964.
ER	Dormitory Car	7	207, 208, 313, 906, 909, 910, 911.
HGM	Power/brake van	9	205, 296, 297, 298, 317, 900, 902, 903, 904.
HM	Mail/brake van	9	255, 256, 311, 312, 318, 901, 957, 958, 959.
SSA	Special Service Car	1	260.
Total:		125 cars	

Paul Rogers

EXHIBITIONS

BRISBANE—QUEENSLAND. May 5, 6, 7, 1979 at the Police and Citizens Youth Club, Caxton and Hale St, Lang Park. Open Sat 0900-2100, Sun 1200-1900, Mon 0900-1900. Admission 80c/40c. Organised by the Queensland Branch of AMRA.

BLACKTOWN—NSW. June 16, 17, 18 at St Patrick's Hall, Patrick St, Blacktown, NSW. Open Sat 0900-1800, Sun 1000-1800, Mon 0900-1700. Admission 80c/40c. Organised by the Prospect Model Railway Club.

CANBERRA—ACT. August 4, 5 at Phillip College, Woden Valley, ACT. Organised by the Canberra Model Railway Club.

If any readers wish to build a handy shunting engine, the following article may be of assistance. Although it is written with "N" scale in mind, because I model this scale, it could be applied to any scale.

Firstly, remove body from chassis and put chassis aside. Then, with a hacksaw blade, or other fine saw, remove top half of cabin, including funnels. Then file both ends of body square, removing lights and grill. Using PLASTI-BOND, or other similar material, build up top of long end of body so as to leave it square and level. (fig. 1).

From thin cardboard — a shirt box is about right — cut a new cabin to dimensions shown and bend to shape. Before bending, cut out windows and glue clear celluloid to the inside. This is then glued over original cabin, making sure all gaps around edges are filled in. (fig. 2).

Cut and bend 2 pieces of cardboard to form the number boxes for both ends (fig 3a). These are glued across the ends of the body, at the top (fig. 3c). Two more pieces of cardboard are needed for the number box covers (fig. 3b). These are glued on top of the number boxes (fig 3c).

The fan is made by filing a plastic knitting needle to form a dome and cutting it off at the base of the dome. Glue the dome into position and form a piece of .036" copper wire into a circle; glue this around central dome and then cut short pieces of the same wire to represent the fan blades and glue these in place to radiate from the dome to the outer ring (fig. 4).

Cut the heads off two 1½" nails and glue the heads onto the roof, drilling a small hole to locate them correctly (fig. 4). The funnel is made from a small piece of plastic, filed to



7201 leaving foundry with "S", "K" and as yet unconverted "BDX" wagons, passes signal box with "S" trucks and uncovered "CHG" van in goods shed siding behind.

72 CLASS IN N SCALE

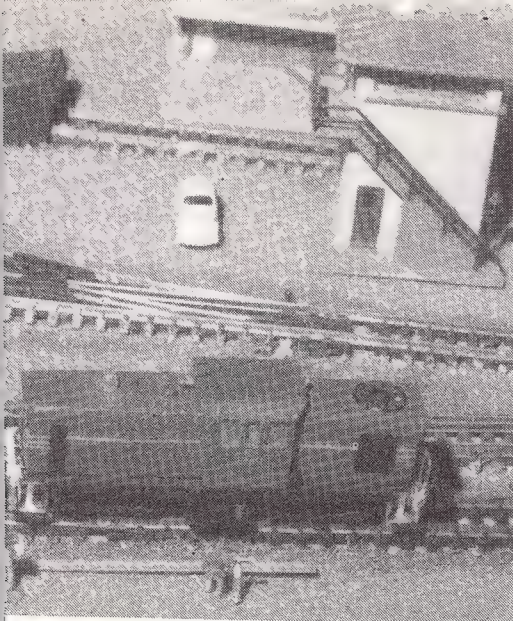
Build a N.S.W.P.T.C. 72 Class Diesel in "N" Scale. Converted from Minitrix No. 2048 by Keith King.



Overall view of southern end of Alextown station and yard showing 42106 and "WTY" wagon on head of goods train, on down main, 7201 on up main, "S", "K" and "BDX" wagons in foundry and "S" wagons and "CHG" van in goods siding.



Waiting in foundry siding for go ahead from shunter. As can be seen in these photos, the scenic work on the layout is far from complete.



shape, and glued to a piece of cardboard and this whole thing then glued to the roof (fig. 4). Four of Mum's sewing pins have to be acquired now to form the horns. Cut two of them to length A and two to length B (fig. 4). These are glued to the bottom edge of the roof, two on each end, with the head of the pin facing out. A piece of plastic is cut to form the battery box and glued to the body. Cut two matches to the width of the walkway and glue these to the body in the correct corners to form the cabin steps (fig. 4).

The body is now put aside and work started on the chassis. Firstly, remove the buffers and put them in a safe place. Cut the pilots from cardboard, ensuring that couplers are free to move and glue in place where the buffers were. Make certain that you don't glue the walkway to this as well, as this has to be able to be removed. Cut the buffer beams from cardboard and glue as shown. Glue the buffers back on now. From .036" copper wire, cut and bend four handrails (there should be more, but I only did the 4 for ease of handling when finished), and glue them to the buffer beams (fig. 5).

The bottom corners of the fuel tank, which were rounded on the original, are built up and filed square.

Your model is now ready to be painted in the following colour scheme, all colours of which are easily obtainable:-

INDIAN RED — Body in general.

YELLOW — Numbers and lining.

BLACK — Fan, walkway, underframe, bogies, cabin steps and radiator grills (these are just painted on mine).

SILVER — Horns, fuel gauges, steps, funnel, makers plates, pilots and headlights.

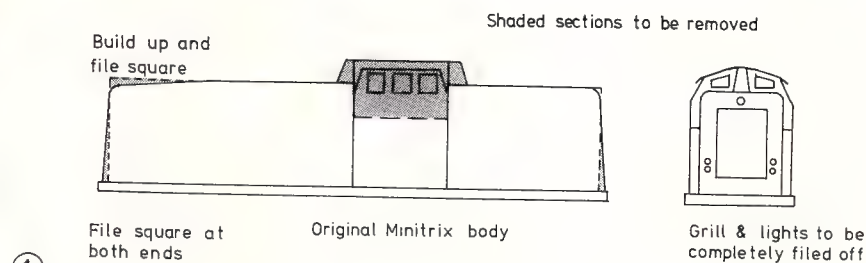
RED — Buffer beams.

Unfortunately, you have no choice as to road number as there was only one — 7201.

Once 7201 is painted, you can go ahead and shunt to your heart's content. (Mine will easily handle 10 or 12 bogie wagons.) (*Loco, that is. Ed.*)

I hope this article will help somebody as much as some articles in the magazine have helped me.

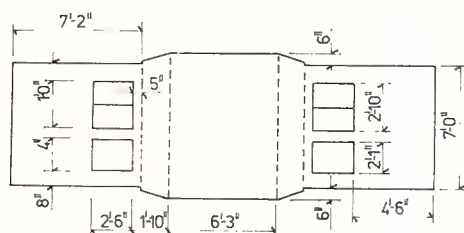
Finally, I wish to express my thanks to the Archives Officer of N.S.W.P.T.C. and also to my wife for all help given and for putting up with my trains and mess everywhere.



①

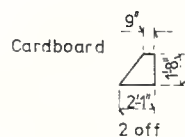
File square at both ends

Original Minitrix body



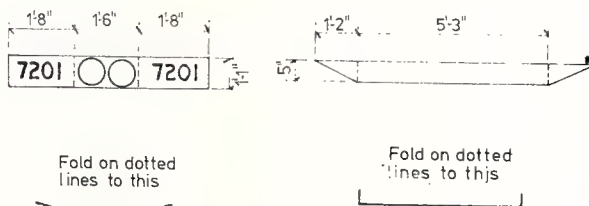
②

New cabin cut from cardboard



Glue as shown

Fold on dotted line as shown



③a

Cut 2 from cardboard

③b

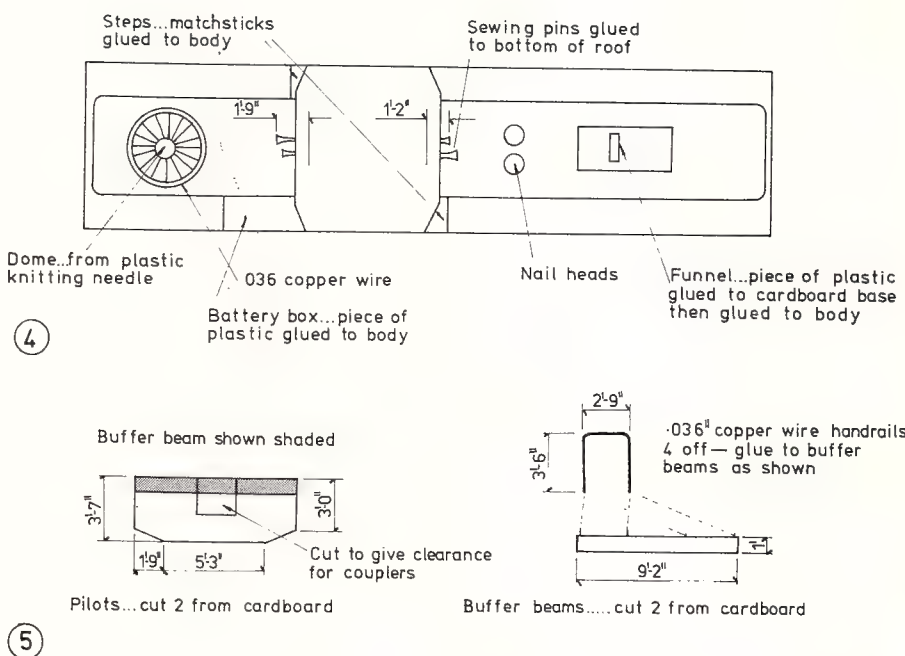
Cut 2 from cardboard

③c

Part 3b

Part 3a

Side of body



④

⑤

N.S.W. VEHICLE COUNTDOWN — 9

In 1955, the N.S.W.G.R. had 242 'PHG' type bogie goods brake vans available for traffic. By 1978, only 9 vehicles of this type remained in serviceable condition.

Paul Rogers

N.S.W. VEHICLE COUNTDOWN — 10

In 1955, the N.S.W.G.R. had 135 'LHG' type bogie goods brake vans in traffic. This class is now extinct.

Paul Rogers

N.S.W. VEHICLE COUNTDOWN — 11

In 1955, the N.S.W.G.R. had 100 '3000' series suburban electric motor cars on its roster. No vehicles of this type remain in revenue service.

Paul Rogers



Locomotive 7201 of the NSWGR entered service on 27th August, 1965. Almost eleven years later, on the 4th August, 1976, the locomotive was written off the books of the NSWPTC after a very checkered career.

The year 1964 saw NSW dieselisation in full swing but one area remained virtually the sole domain of the steam locomotive; that area was shunting. The two 79 class worked Central Yard, Port Kembla had its 70 class and the troublesome 41 class were around but most people preferred to forget about them. These classes represented both diesel-electric and diesel-hydraulic types but generally little experience had been gained with diesel-hydraulic traction as the larger power mainliners were all diesel-electric.

In order to correct this lack of knowledge

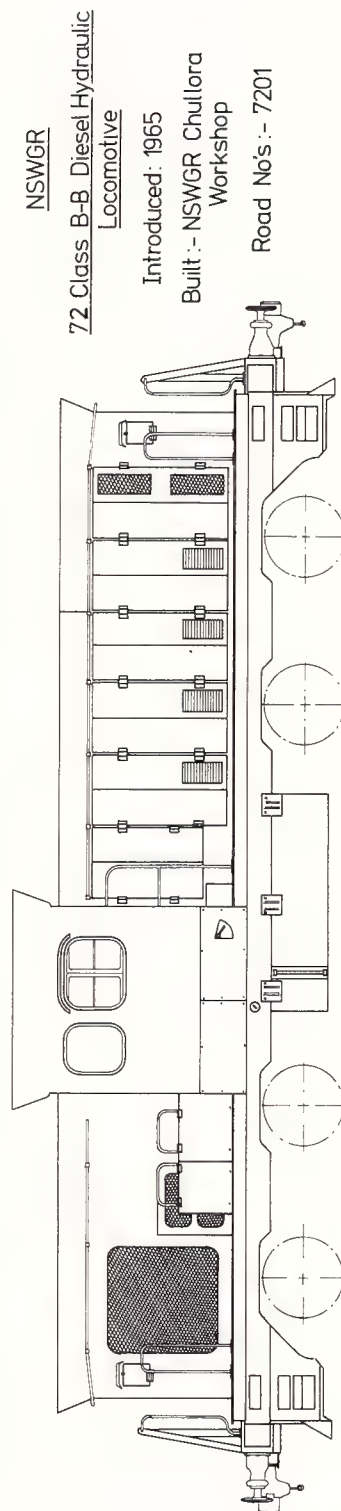
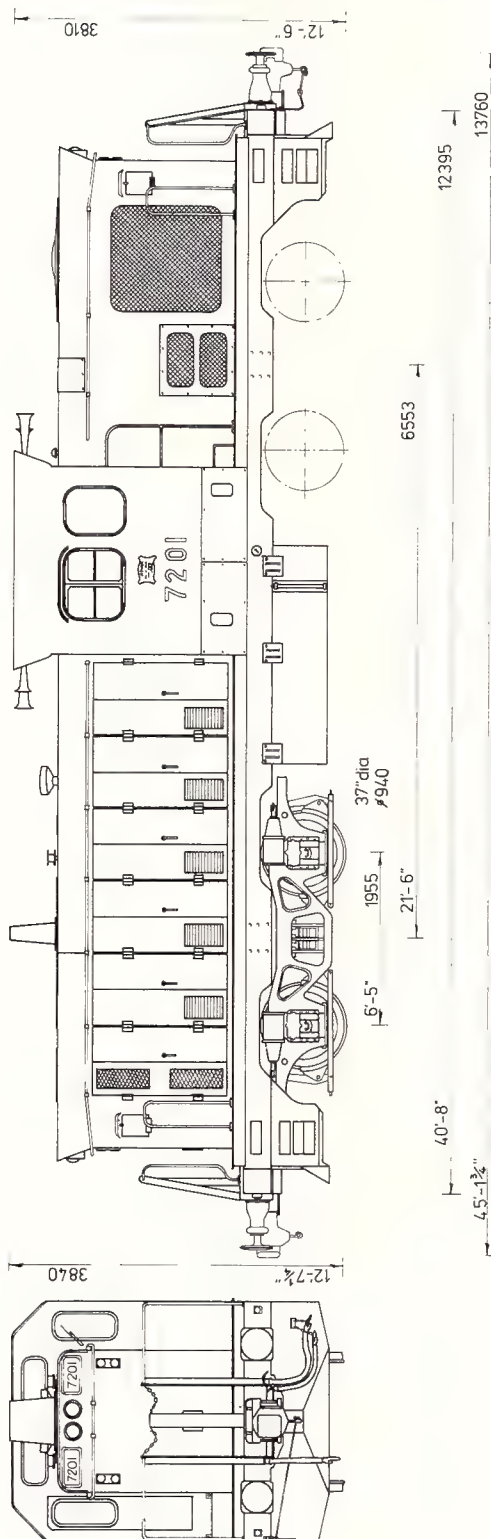
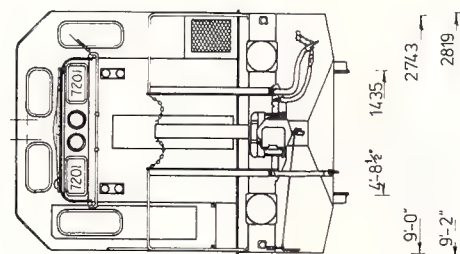
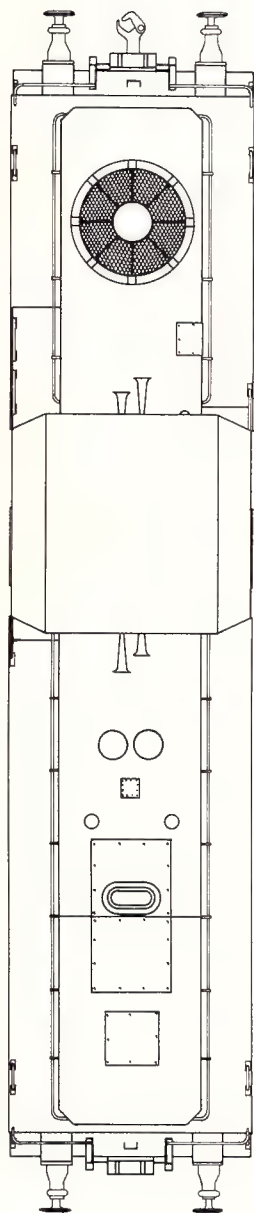
the Department set about to build a prototype diesel-hydraulic locomotive suitable for the medium to heavy shunting role. The task of building the locomotive was given to the Plant and Equipment Section of the Water Supply Workshops at Chullora. The new locomotive was allocated Builder's Number 9. Previously these workshops had built two 100 hp and six 200 hp rail tractors for light shunting at a number of country locations.

The designer of 7201 must have been a railway modeller and an experienced kitbasher into the bargain. In order to save time and costs many redundant steam locomotive parts were incorporated into the design. The locomotive frame was originally a D58 tender underframe, suitably lengthened and modified but complete with buffers and draught gear. Bogies also came

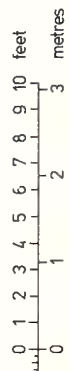
from standard goods type tenders, modified with clasp brakes and fitted with final drives on all axles. These drives were of Departmental design and manufactured by the Mechanical Branch originally for the X200 rail tractors, but for 7201 the ratio was changed from 8.5:1 to 5.9:1.

Power was supplied in the form of a Cummins Model V12-825-B1 engine, rated for 705 hp at 2,000 rpm with 640 hp available for traction. The engine had been de-rated from 825 hp at 2,300 rpm to prolong engine life. Directly coupled to the engine was a Clark C16421 four speed transmission. Cardan shafts connected these latter two units and further cardan shafts transmitted power to the final drives. The completed locomotive weighed in at 55 tons; that is an axle load of 13.75 tons.

N.S.W.P.T.C. 72 Class Diesel Hydraulic Shunter



Note:- This side is identical to other except where shown



NSWGR
72 Class B-B Diesel Hydraulic Locomotive
Introduced: 1965
Built :- NSWGR Chullora Workshop
Road No's :- 7201

All additional data with respects to weights and measures can be obtained from the plan and general specifications.

Appearance followed the then current hood design with a full width cab about two fifths from the end. The long hood contained the engine, torque converter and Westinghouse brake pump while the shorter hood housed the radiator and cooling fan. Driving controls were, naturally, located in the cab which provided the usual diesel appointments. However, visibility for shunting was not as good as it could have been and was one feature corrected in the later 73 class.

Paint scheme was standard Indian Red with a single Chrome Yellow band along the sides and the three vees surmounted by the Departmental crest and two horizontal bars decorated the hood ends. Red buffer beams, black under-frame/tank and white pilot completed the colour scheme. Handrails and exhaust stack were also white originally. Later all the white paintwork was changed to silver. Two sets of twin airhorns completed the external appearance.

In service the unit had an infamous career. Its first trip was to Penrith and return on 27th August, 1965 before commencing trials at Cook's River and Darling Harbour goods yards. These tests were followed by trials at a number of large country centres. 7201's early days, like its entire history, were not without dramas but the locomotive gave the NSWGR sufficient experience and understanding of diesel-hydraulics to allow them to decide in favour of this type for the shunting role. The final unit chosen, however, was a modification of a proven design, the Walkers built 73 class.

Most of 7201's working life up till 1970 was spent at Rozelle shunting the yards and, in particular, the coal and wheat loaders. However, it was a little short of power to move the number of wagons at a time that demands really required. During this time the unit was officially listed at Delec. In March, 1970 7201 was trialed at the newly completed Acdep as a shunter. The result was considered satisfactory except that the buffers caused some fouling and required removal. However, on return to Rozelle it promptly failed. After repairs at Chullora it took up permanent duty at Acdep on 21st April, 1970 but it was not until June of that year that the buffers were actually removed. The unit was officially transferred to Eveleigh Depot at this stage and some of its critics claim that the reason for this is that it was "within pushing distance of Eveleigh Workshops".

In December, 1970 the locomotive was again in workshops for 'out of course' repairs and was replaced as Acdep shunter by the near new 7303. This scenario was to be repeated regularly until 2nd March, 1976 when it failed, for the last time, with a seized engine.

Despite its history of failures and long periods out of service, 7201 did serve a useful purpose in allowing the NSWGR to evaluate the diesel-hydraulic locomotive in the shunting role. The fact that the 73 class was ordered must in some way reflect on the "success" of 7201 as a trial-horse.

More photos and text next page.

The Advertising deadline for the May/June edition of the Australian Model Railway Magazine is the 20th April, 1979. Please be early.

TRADE PRACTICES ACT 1974

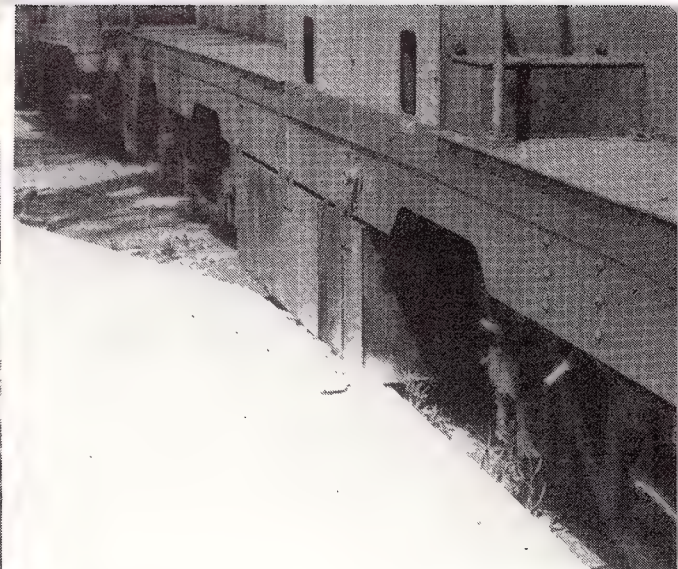
The above act is now in force and contains strict regulations on advertising.

It is not possible for this company to ensure that advertisements which are published in this magazine comply with the Act and the responsibility must therefore be on the person, company or advertising agency submitting the advertisement for publication.

In case of doubt, consult your lawyers.

SCR Publications.





Right to the end 7201 proved to be a problem . . . on delivery to its final destination (the metal chopping block at Simm's Mascot plant) the loco fouled the recently installed working area, stopping its progress to its final doom. Photos by Bob Gallagher.

The last journey for 7201 began on 9th December, 1976 when it was hauled to Enfield for weighing before final transfer to Simsmetal Ltd. at Mascot for cutting up. Even this was not without drama as fitted on freight bogies the lower height of the locomotive caused the underframe to foul on concrete abutments on the cutting-up road. 7201 had the last laugh on all of its critics. It may not have run very well but it could not be stopped either.

General Specifications

Length (over couplers)	45'1 1/4"
Height (maximum)	12'7 1/4"
Width (maximum)	9'2"
Bogie Wheelbase	6'5"
Bogie Centres	21'6"
Tractive Effort	32,500 lb at 5 mph.
Maximum Speed	.45 mph.

Acknowledgements

*Railway Transportation
N.S.W. Digest
Modern Locomotives of the N.S.W.G.R.
Compiled by Phil Collins.*

Photographs by Graham Ball.

A DREMEL SPEED CONTROLLER

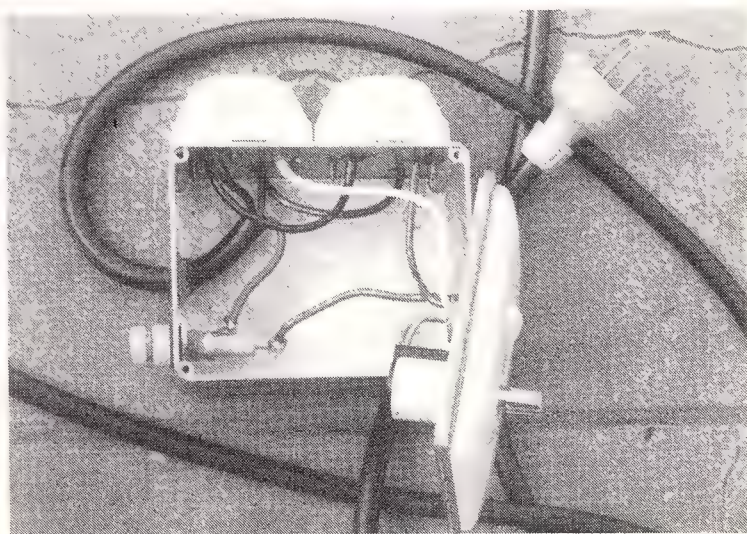
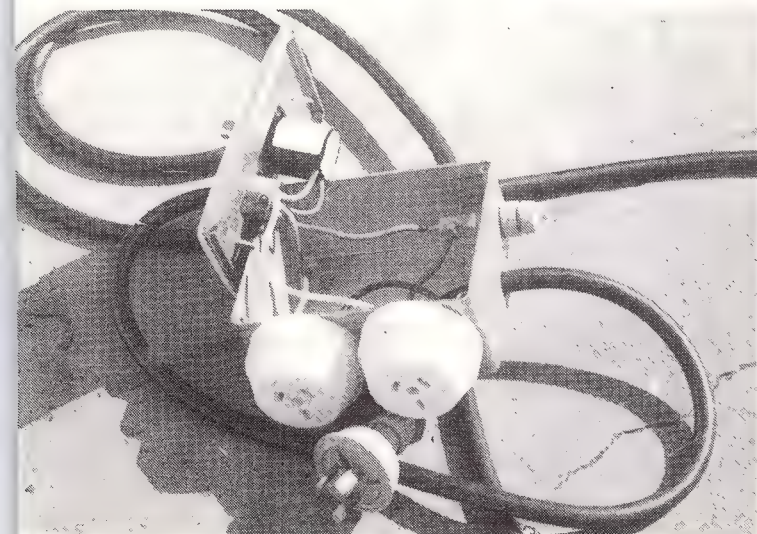
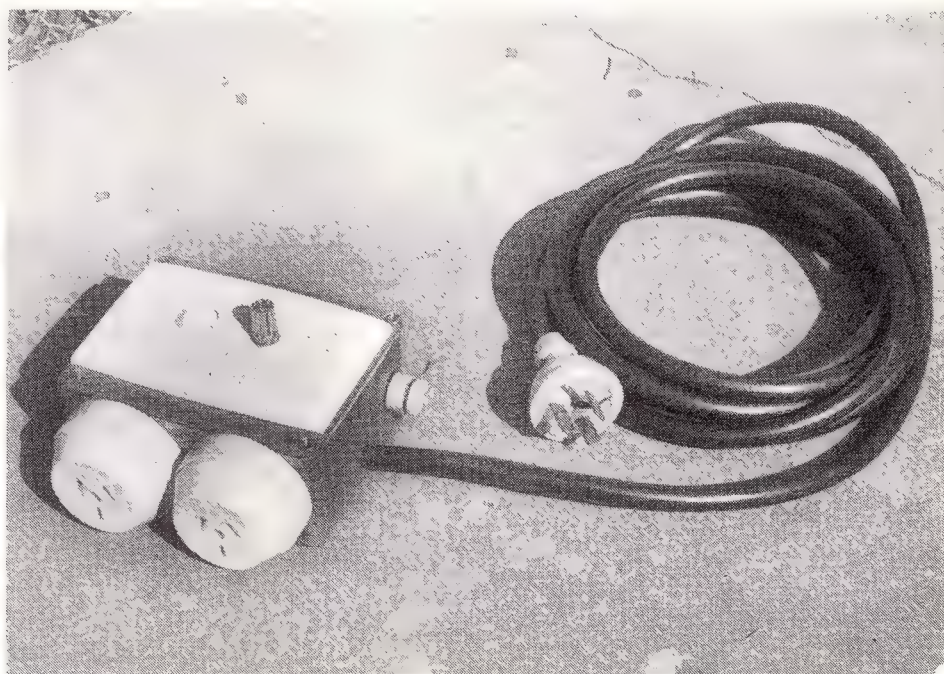
How often has it been said or written that you cannot work on plastics with a Dremel motor tool because of the high revs heating the plastic and forming a molten blob on the drill, burr or other tool being used, often ruining the work in hand. There are circuits available which will control the speed of power tools, including a Dremel; however, being the naturally lazy type I hit upon this simple idea.

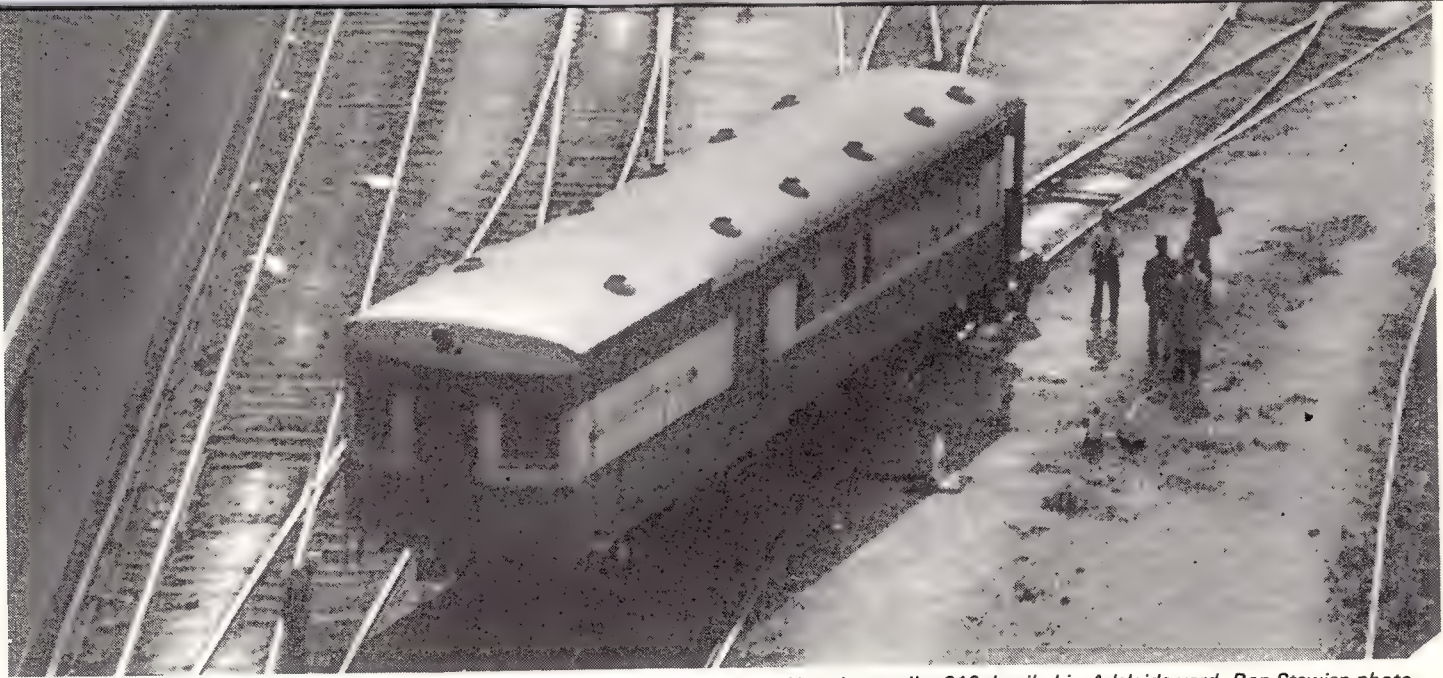
With no more skill required than that necessary to wire up a transformer/controller to track, a light dimmer switch was connected in Series with the Dremel — and it worked! The Dremel could be controlled from so slow as to be virtually torqueless to full speed.

The photographs shows the speed control unit in its final form. A fuse (2A) was fitted to protect the 500W unit from overload and an uncontrolled outlet to which can be connected a light or other power tool as required.

The unit has been in service for about two years and to date has given no trouble, still performing as it did when first built. A speed controlled Dremel and plastic is an ideal modelling combination.

D. Toohey





Horsebox trailer 210 derailed in Adelaide yard. Ron Stewien photo.

HORSE BOXES of the SAR

RAILCAR TRAILER 210

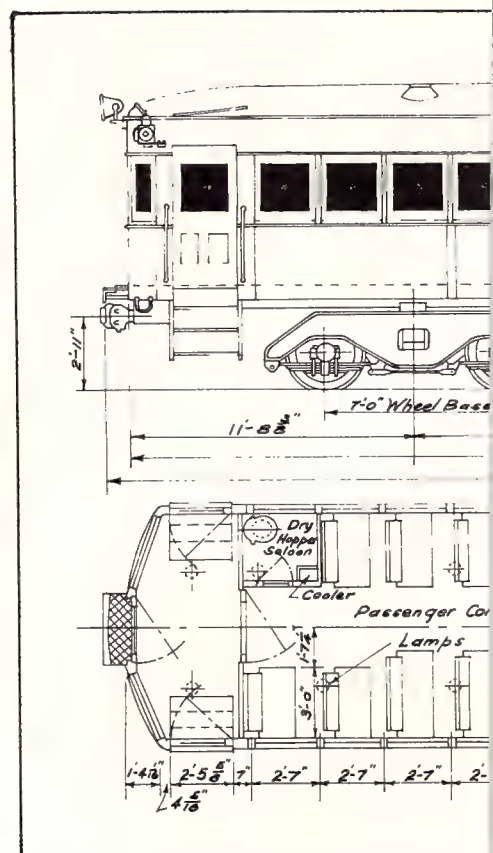


TRAILER CAR FOR RAIL MOTOR SERVICE Fitted with accommodation for 45 passengers, 3 horses and baggage compartment
Built at Islington Works 1929

A copy of photos from a 1930 era SAR publication.



A copy of photos from a 1930 era SAR publication.



This vehicle was issued 29/6/1928 and had the basic dimensions of a standard Brill 75 class railcar trailer. It could carry 3 horses, an attendant, one ton of baggage and 45 passengers. It was later modified for remote control working so that it could work between two power cars with only one driver required. It was stored in 1960 and condemned on 15/5/1962.

Photos of trailer 210 appeared in several early SAR publications showing doors open or closed. It also rates a special mention in the General Appendix. There were no passenger platforms at intermediate stations along many of the broad gauge lines North of Adelaide particularly Stockyard Creek to Moonta, Halbury to Georgetown on the Gladstone line, and Willa Mulka to Condownie on the Kadina to Brinkworth line. This meant that horses had to be unloaded onto the Freight platform hence the instruction that horses were to be loaded so that the first horse that was to be unloaded en route was nearest the freight platform side of the trailer. Stations loading horses had to ask the Train Controller which side of the trailer would be adjacent to the freight platform.



Class leader S 300 with 'X' class bogies. Note the side hostlers window has been cut in. Photograph by Peter Vincent.



S 315 with 'S' class bogies.

All photographs, unless indicated, were supplied by Peter Vincent.



The first of the VR's Co-Co 'S' class Diesel-electric main-liners brought the Spirit of Progress into Spencer Street Station on 19th August, 1957. This S was direct successor to the first of the four mighty Pacifics which had done that same job for 20 years. Both of these S 300's bore the name Matthew Flinders.

The first order for Diesel-powered 'S' class was for 10 locomotives. All were named after famous Victorians, as listed elsewhere in this issue. They were delivered progressively from Clyde Engineering (NSW) during 1957 and 1958. The remaining units (310-317) were delivered for standard gauge workings, which commenced in 1962. The 1800HP 'S' class soon supplanted the 1500HP 'B's' on premier expresses such as the Overland and the Spirit of Progress. Before those days, though, at least one of the standard gauge units was given the menial task of going up and down the newly laid standard gauge track, towing fully loaded ballast hoppers at 25 mph, to settle the track down. Unfortunately, one struck a track machine which had been dragged out just foul of the main line by vandals. Result — a brand new 'S' with bent body panels.

Because the first batch were delivered on standard-gauge bogies, they had to be bogie-exchanged at Bandiana (near Wodonga) on to their 5'3" bogies. One of the photos shows this job in progress on S 300.

Variations

There have been few variations to the S class. For all practical purposes, the 16 in service are identical. The known, minor, variations are as follows:

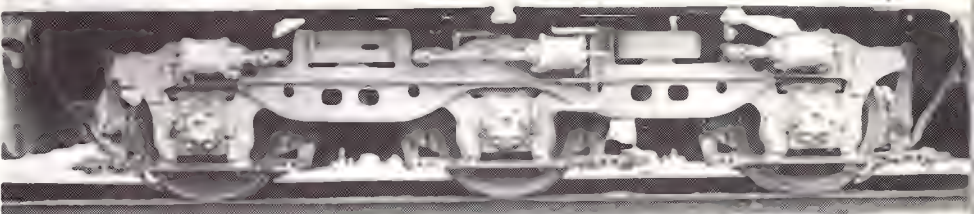
- Bogie types. There are two interchangeable types used under 'S's' and 'X's'. Occasionally an 'S' will be seen prowling around with one of each type.
- Valances. As delivered, all 'S' class had a 'valance' on the lower body, partly covering the fuel tank. It was something like a mini-



Keith Buckland discovered S 301 skulking behind North Melbourne Loco Depot. She had a roof painted yellow ALL OVER — a unique and never repeated sight. Note that she did not have the hostler-end side window.



S' class power bogies.



'X' class power bogies.



skirt. It seems that few (if any) are still on the locos.

● Hostler side windows. These are a small square window on the side at the blunt end, and are there for the hostlers. 'Hostlers' move the locos around the depots for servicing and stabling. The 'S' have a set of controls at the back for such movements, together with rear windows. As delivered, the first few locos had hostler controls but no side window. Subsequent deliveries had the side window, and the VR cut the windows into the early deliveries themselves.

Present Status of the Fleet

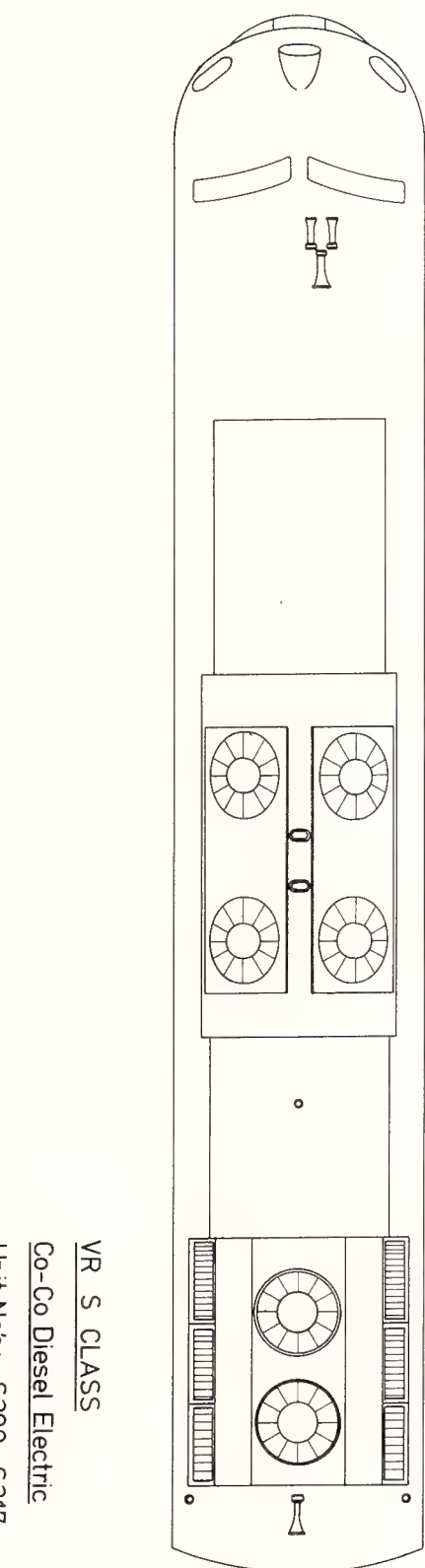
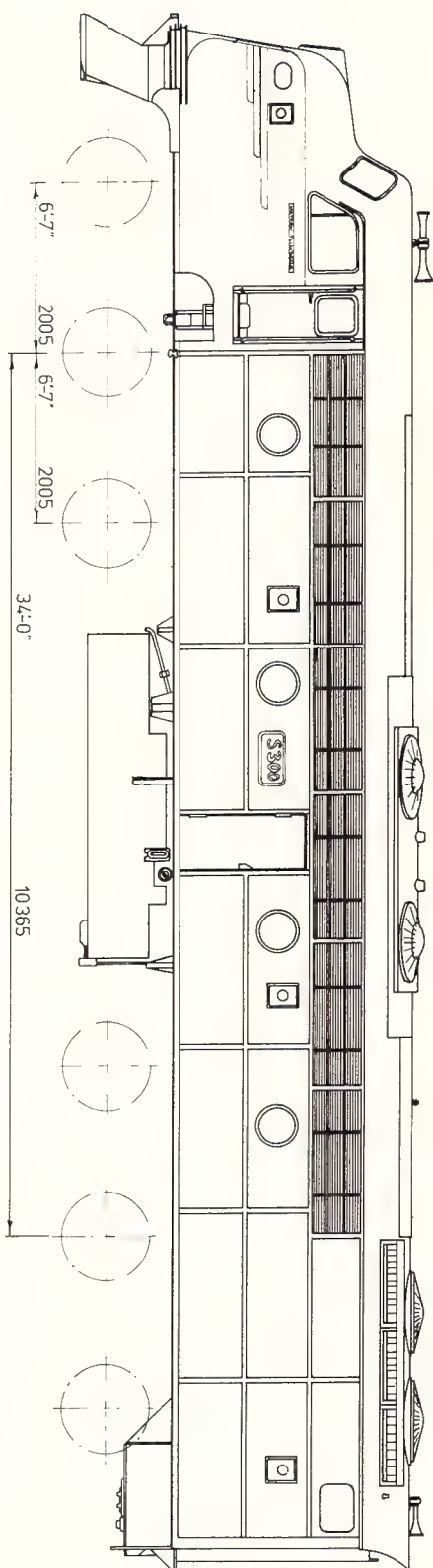
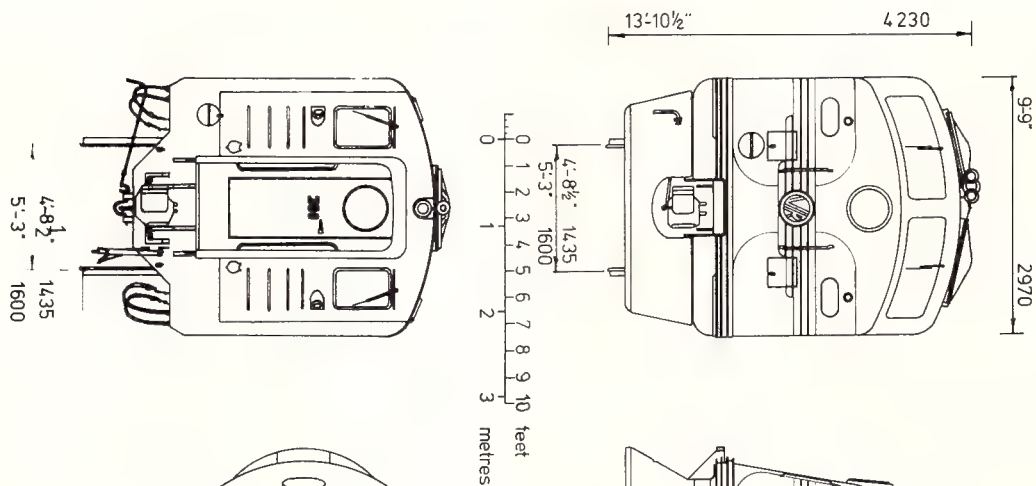
There are only 16 'S' class currently in service. S 314 and S 316 were smashed beyond repair in the 1969 Violet Town accident, when the south-bound Southern Aurora collided head-on with an express goods train. Earlier

on, S 317 was badly mauled as a result of a similar collision south of the Broadford loop. It was sent back to Clyde and rebuilt, and is still in service.

The main uses of the S are fast freight and passenger services on the Albury (North-East) and Serviceton (Western) main lines. They are frequently in multiple-unit operation with 'X's' and sometimes 'T's' and 'B's'. Occasionally they head the morning and evening Geelong commuter trains. For a few years, the Railway Commissioners insisted that the name trains (e.g. the Southern Aurora) be drawn by 'S' class and not 'X' class, as the 'X' are rugged-looking beasts. These days, the more numerous 'X' seem to predominate.

Modelling the 'S'

There is no exact equivalent of the VR 'S' (or its sister, the NSW 42 class) on American



VR S CLASS
Co-Co Diesel Electric
 Unit Nos:- S300 - S317

DRAWN R JOHNSON 13DEC77



A VR photo of the bogie-exchanging of the class leader on her delivery run. Hostler side window yet to be cut in.



railways, and therefore no commercial model. Some GM E-series passenger diesels come close — except for the bogies. Even the Hornby 'S', a good model, has American GM bogies.

O-gauge modellers could adapt the US 'All Nation' F3 kit, but a good deal of kit-bashing would be required. However, the streamlined cab end would then be no problem at all. It is rather a daunting problem to scratchbuilders.

Compiled by Ian Weickhardt.

"S" CLASS DIESEL OF THE VICTORIAN RAILWAYS

The coming of the VR "S" diesel-electric in H0 scale will be welcomed by many modellers. The Victorian Railways has named each locomotive in this class; a full list appears below.

- S.300 — Matthew Flinders
- S.301 — Sir Thomas Mitchell
- S.302 — Edward Henty
- S.303 — C.J. La Trobe
- S.304 — George Bass
- S.305 — Hamilton Hume
- S.306 — John Batman
- S.307 — John Pascoe Fawkner
- S.308 — Sir Redmond Barry
- S.309 — William Lonsdale
- S.310 — George Higginbotham
- S.311 — Ferdinand Von Mueller
- S.312 — Peter Lalor
- S.313 — Alfred Deakin
- S.314 — Sir John O'Shannassy
- S.315 — Sir Charles Gavin Duffy
- S.316 — Sir Andrew Clarke
- S.317 — Sir John Monash

The names applied to locomotives S.300-S.303 inclusive were those originally used for the former "S" class Pacifics which also carried these road numbers.

Locomotives S.314 and S.316 were damaged beyond economic repair in the collision at Violet Town in 1969.

References:

1. 'An Australian Diesel Locomotive Pocket-book', P.J. Clark (A.R.H.S., 1973).
2. Victorian Railways Commission.

Compiled by Paul Rogers.



CANNING YOUR GARRATT

by Phil Curnow

As mentioned in several editorials and letters to that poor soul in recent issues the purchase of brass engines is often soured by their performance on the track. Why does a \$30 Atlas diesel run so much better than a \$300 brass extravaganza? Maybe we should be asking Roco to design the mechanism and let the Japanese build the bodywork; but I'm wandering off the subject.

Since their introduction the brass garratt has been the subject of many complaints. A little while back Roger Johnson printed a burst on how he repowered a garratt with KTM open frame motors and improved performance considerably. A friend tried this and found that his model was only slightly better than the original. The search went on.

Over the last few years there have been many articles in American magazines singing loud praise about micro motors, can motors and more recently Canon Coreless motors. Trouble is that the price of motor and gear head starts at \$30 each and climbs rapidly, so double that for the garratt with its two motors.

Recently Model Dockyard has arranged distribution of Sagami and another unbranded type of can motors. Walther's Catalogue gives some of the vital statistics of Sagami cans and several types of open frames motors, and their speed ranges appear similar. I took the plunge and assumed that if the speed (r.p.m.) was about the same I shouldn't need to change the gear ratio, which meant that I wouldn't have to unsolder two driving assemblies and requarter wheels, etc. Sounded like an offer too good to miss.

I bought two 16mm unbranded cans from Model Centre for \$11.50 each and went to work. The water tank end is fairly easy as I only had to drop out the old motor and throw

the can into the same place using the same rubber tube. Unlike the Sagami these unbranded cans only have mounting holes on the shaft end of them which in this case meant an awkward bit of bending to make a rigid bracket which would hold the motor at the correct angle. I took the passing siding for this problem and used a piece of shim brass to make a clip which wraps around the can and holds it tightly onto the existing frame to stop the can spinning. The coal bunker is more difficult because it has less headroom inside and I had to once again take a saw to a brass engine, which I never really enjoy doing. Anyway, I mounted the can nearly horizontal after moving some of the frame and shortening the motor shaft. Another shim brass clip holds it in place.

To say I am pleased with the result is a real understatement. Previously the engine would flatten a 2 amp power supply with ease whilst hauling a ridiculously small load. I couldn't shunt with this engine because either end would stick as if there were binds in the mechanism, whilst out on the road the coal bunker end always seemed to be turning faster than the other set of driving wheels. At first I convinced myself that this was some type of optical effect but then other owners said the same about their garratts, although it was not always the same end that ran fast. As a result of this the locomotive was always restricted to fast through goods or fan tours.

Nowadays things are different. By setting up the motor/rubber tube/gearbox alignment using a multimeter I was able to get each motor down to about 0.2 amp in either direction. Surprisingly a thorough oiling of the mechanism saved nearly 0.05 amp. The loco now pulls only ½ amp under full load instead of over 2 amps, which makes double heading possible. Instead of 5 converted Athearn hoppers the

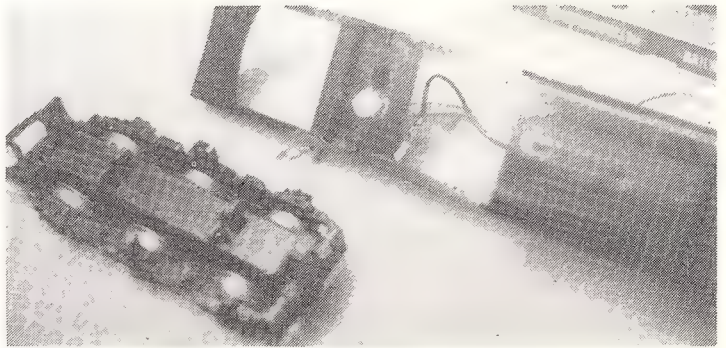
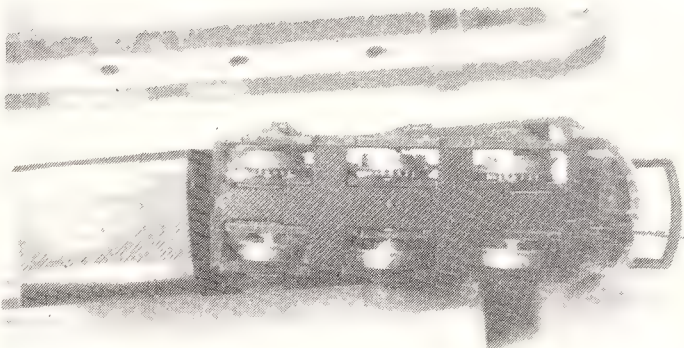
loco will pull 20 up a 1 in 30 grade. The two mechanisms run at the same speed with no strange binding problems and at long last I can shunt a coal mine if I want. All that I have sacrificed (besides my \$23) is top speed, which doesn't worry me at all.

As for power, compared with a normal motor perhaps a little story will be of value. A friend likes to fit backheads to his locos, which often means that the motor has to be fitted into the tender with a thin drive shaft with universal joints connecting the original gearbox. After several attempts Bruce developed a standard fitting that worked for all his motors. One of his recent efforts was to put a Cannon motor into a tender with his standard drive shaft. He was rather unpleasantly surprised when the driving wheels jammed at low speed while the motor kept turning eventually tearing his drive shaft to pieces. Oh well, back to the old drawing board!

Setting up the motors with the help of a multimeter was fairly easy using a test bench built by Precision and advertised in US magazines. A roller is placed under each driving wheel and power applied to the motor. The whole mechanism can work with the weight as if the engine was on the track, which is preferable to being upside down on blocks. If you don't have a roller test bench it would probably be better to measure the current drain while the engine is running along the track rather than up on blocks to get readings when under load.

Oh yes, there's one more point to consider. Because of the very low current drain most resistor throttles won't be able to control your engine at slow speeds. You may need to build a transistor throttle which start at about \$8 for parts.

MAKE YOUR HORNBY 'S' CLASS WORK



The bitter disappointment with this loco is that it has a toy mechanism. By this I mean it is designed to run on toy track.

Mine would not even run — it had a piece of someone else's magnet jammed between the armature and motor frame.

I spent about 30 hours to make mine work reasonably and with the editor's permission I will help you avoid all the experimentation and achieve it all in one hour.

The obvious fault is that the loco leans to one side and is always running down hill. The rear (non power) bogie is removed by springing its retaining hooks. It will be observed that it pivots on a tapered peg moulded into the frame, but off centre.

Balance is achieved by making a similar peg from, say, polystyrene sprue and glueing it beside the existing peg. When dry file both level with the sides of the body frame. This will bring the body down to level.

If you use live point frogs the loco will stall on NMRA points because all wheels are too narrow in gauge.

The rear bogie is easily corrected by respac-

ing wheels on axles. Remove axles from the frame to do this and ensure insulated wheels are replaced on the left side of the loco.

The front bogie is similar except that spacers must be used to ensure gear meshing. After some experimentation I found that one 8 B.A. brass washer between each wheel and the motor frame (all six wheels) gave correct meshing with the wheels respaced to the NMRA gauge.

Providing you have replaced everything correctly now and your motor is a good one, the loco is ready for service — unless you want to fit Kadec couplers or make it into a 42. Then lots of luck.

Max Chaseling

NTRACK

The modular N scale system.
See it on display at the Brisbane Model Railway Exhibition.

NTRACK Manual and Newsletter
available from 15 Selwyn St, Beaudesert
4285. SAE for details.

EDITOR'S AWARD

The 1979 Editor's Award goes to Laurie Evans for his article "The Building of a Katie", as featured in the May/June, 1978 issue.

Mention must also be made of Rod Parry's "GM12 Conversion" article, Clive Huggan's "Tracks", Howard Smith's "421 Conversion" and Terry Burton's "Laying N Scale Track Bed". The Katie article was presented to us in its entirety and needed no follow up, thereby making its final presentation a lot easier for us. Additionally, it is the one article most frequently discussed; therefore its purpose must have been fulfilled. These two factors decide the outcome of the Editor's Award.

My thanks go to all the authors over the year for not only making my selection again an awkward one but, most importantly, for contributing and sharing your ideas and methods with us all. This is your magazine. You are the writers; we merely put it all together.

Allan Brown

S.A.R. 'Y' Class Open Wagon

by Phil Curnow

In April 1909 construction of an all steel open wagon commenced for the South Australian Railways' broad Gauge system. A total of 503 of these Y class wagons were built until March 1911. In later years almost all of these were converted to narrow gauge (3'6") and transferred to the Port Lincoln Division. A few remained on the broad gauge however. In February 1913 construction of a new group commenced although these were classed as YY. When construction ceased in September 1922 a total of 762 of the YY class had been built so making a grand total of 1265 similar wagons operated on two gauges. A few of the YY group were also converted to narrow gauge. The 1957 wagon listing gives 675 remaining on the broad gauge including 13 of the original group while a further 433 are in the YX class at Port Lincoln. The introduction of the OBF class open wagons (refer AMRM Nov/Dec 1975) brought a gradual reduction in the total of older broad gauge open wagons by withdrawal and conversions so that by June 1977 there were 149 still on the books plus an additional 50 converted to YST class.

In the late 1920s a program began to change the YY class from draw hook and chains to automatic couplers and when converted each wagon was recoded to YA. When the project was completed in the 1930s all of the YA class were classified as Y class which they have retained ever since. The buffers had also been removed. In 1963 the capacity was increased from 16 to 17 ton following the ten percent overload system. Originally the number and other details were painted in white on the basic wagon colour of dark grey. The lighter grey colour and black background to the number panel was introduced in the early 1960s. The overload capacity was printed in yellow paint while the other details were in white. In recent years the overload system has been abolished and the absolute capacity is printed in white.

Three types of axleboxes are fitted to these wagons and examples of all three are still in service. The originals were a cast metal axlebox with a hinged lid. During the 1940s castings were difficult to obtain so a fabricated axlebox was fitted as a replacement and is identified by the rectangular lid with central mounting screw. From 1950 onward castings have been available and this new variety are identified by the round corner with central mounting screw.

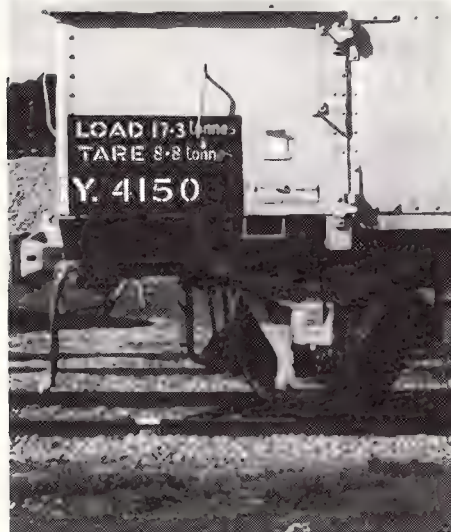
Originally the wagons were fitted with wheels having nine spikes however replacements have often been disc wheels (either solid or twin holed) so that it is now common for the two types of wheels to be mixed at random



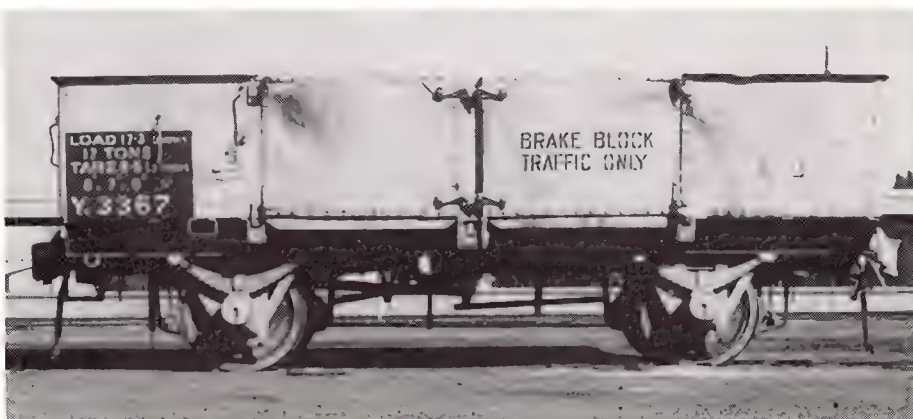
Showing signs of body repairs Y3667 stands on dual gauge track next to the Gladstone works train in January 1976.



Battered Y3506 with different wheels photographed at Mount Gambier in March 1976.



Closer view of the axle box on Y4150 at Riverton in May 1977.



Y3367 with dual metric/imperial markings and traffic restriction sign written in black onto the grey doors.



This photo of a Y or YY class with original draw hook, coupling chains and buffers is part of a scene taken at Adelaide station in the 1920s. Archives photo.



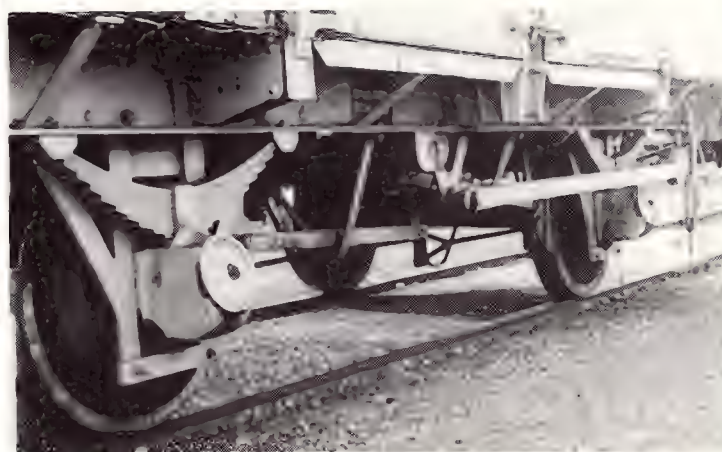
Loaded hatch cover wagon at Wallaroo photographed by Dave Flanagan in Oct. 1973.



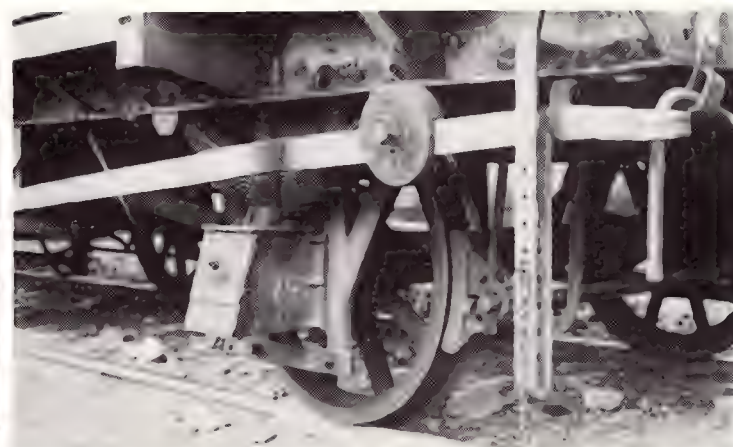
Y4150 with metric markings, original axle boxes and disc wheels.



One of the YST class fitted with a cradle to carry rolls of coiled steel sheet.



Detail of the hand brake side of a wagon fitted with the later type of cast axle boxes. Note that the inner brake shoes are only fitted on the handbrake side.



Detail of the fabricated axle box fitted to Y3692.

among the three types of axleboxes. Usually both axles have the same type of wheels however Y3506 is one of the exceptions as it has round topped axleboxes, a pair of spoked wheels and a pair of disc wheels. Most of the class have the sides rivetted together however some, including Y3692 have been welded possibly as a result of repairs. Many of the class have a builder's plate attached on the end of the body and here there are variations

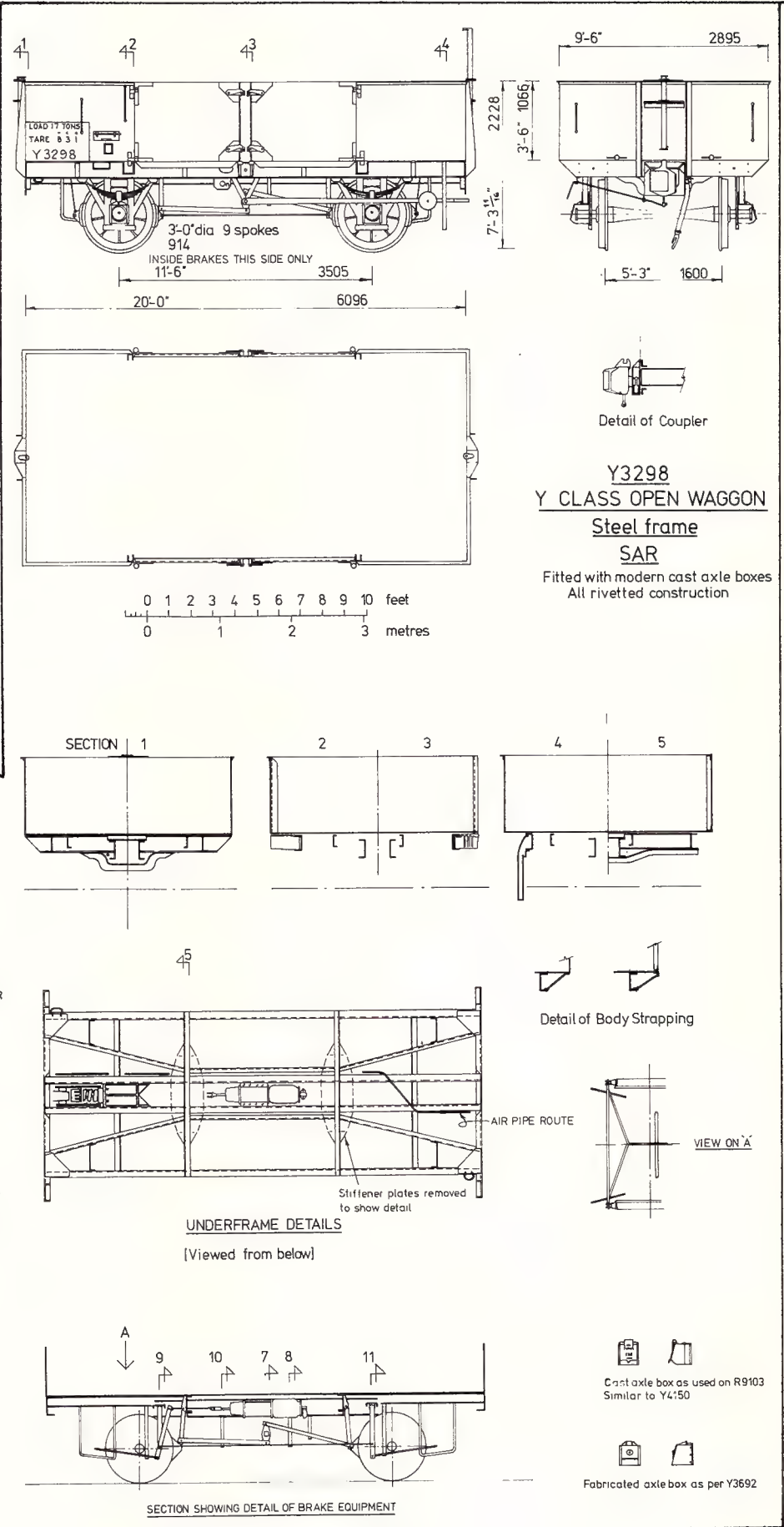
as some plates are rectangular and others are oval shaped.

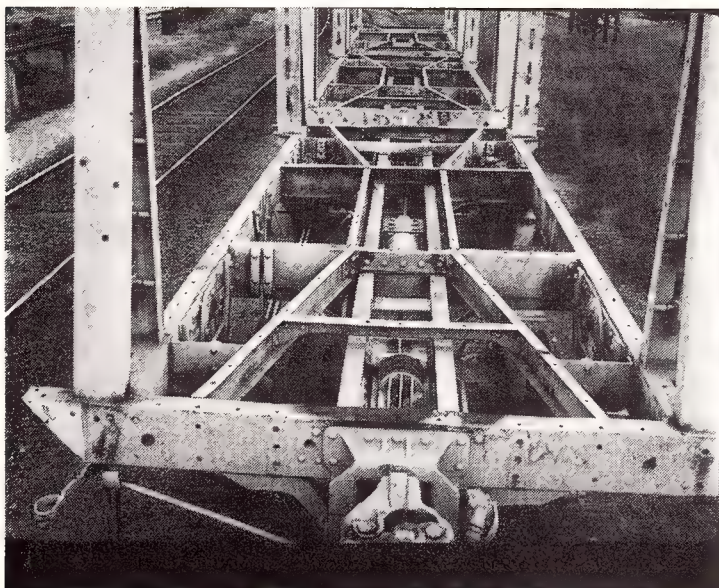
The large number of these wagons on the roster has made them the prime target for conversions requiring a four wheeled chassis and I have included photos of some of them. In 1928 YY3490 was converted into the weighbridge test car. In 1965 Y4245 was altered to form a flat wagon YR4245 which formed part of the broad gauge rail train.

Four were converted to ballast ploughs 3562 (1936), 4159 (1939), 3437 (1955) and 4121 (1959) with 3562 having railings instead of the original sides. Y3409 had the doors removed and the side panels sloped in 1973 for sleeper traffic. In 1972 a group of 50 wagons were converted to YST class to carry coils of steel plate. The doors were removed and a cradle fitted to the floor. In 1969 the long bodied HB class coal hoppers were fitted



One style of builder's plate as fitted to the Y class.





Chassis details show clearly in this view of a hatch cover wagon at Wallaroo in December 1972.



The weighbridge test car photographed at Gillman in 1974. This was a 1928 conversion from YY3490.

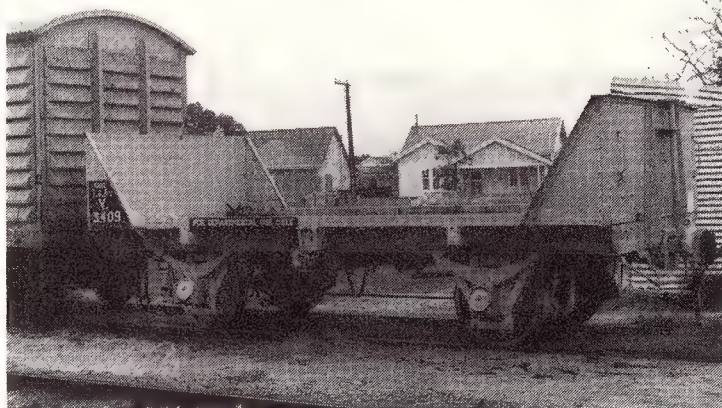
with roof hatches and permanently converted to carry wheat and super. In 1975 the hatches were modified to make them removable so that when not required for wheat traffic the wagon could be used in the stone trains from Penrice quarry. Four Y class were converted into hatch carriers by removing the complete body and fitting corner posts and bracing. The hatches are clipped to these corner posts and the hatch carriers are usually stored at Wallaroo. Several wagons have been lettered 'brake block traffic only' including 3722 and 3367 however the rules are made to be broken and they have appeared loaded with mallee roots. A group of about ten wagons has been listed to carry scrap metal between Chrysler's plants at Tonsley and Lonsdale and the instruction is printed in yellow on their sides however they also have been known to wander. A few wagons have recently been painted a rich orange colour for non revenue traffic.

In this construction period the SAR allocated numbers to wagons in consecutive order according to when their construction was approved so that gaps in the Y class numbers belong to other vehicle types that were built in this period. The low numbers 2 and 568 were built as replacements for condemned wagons of other classes. Y568 was still in service in 1976 but Y2 was condemned several years ago.

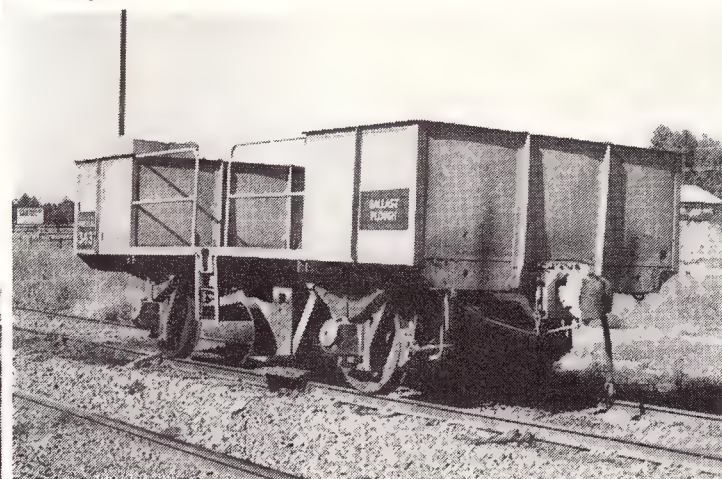
The 1957 wagon list shows only 2449, 2465, 2528, 2564, 2576, 2577, 2650, 2726, 2745, 2787, 2841, 2948 and 2954 out of the first batch of 503 wagons as still remaining on the broad gauge with the rest having been converted to narrow gauge. A total of 662 of the original group of 762 remained on the broad gauge. In June 1977 only 149 Y class and 50 YST class conversions remained on the broad gauge.

The choice of the Y classification is from

ORIGINAL CLASS	NUMBER	CONSTRUCTION DATES	BUILDER
Y	2427 - 2678	4/1909 - 7/1910	Islington Workshops, Martin & Co
	2710 - 2778	2/1910 - 6/1910	J. Martin & Co.
	total	2/1911 - 6/1911	J. Martin & Co.
	503	11/1910 - 3/1911	Islington Workshops
YY	3255 - 3519	2/1913 - 11/1913	Gray Bros.
	3551 - 3584	11/1913	Gray Bros.
	3620 - 3657	11/1913 - 12/1913	Gray Bros.
	3658 - 3757	12/1913 - 6/1914	J. Martin & Co.
	3902 - 3904	2/1914	Gray Bros.
	total	3042 - 3141	Islington Workshops
	762	3532, 3533, 568.	Islington Workshops
		2, 4101 - 4103	Islington Workshops
		4101 - 4204	Islington Workshops
		4205 - 4317	Islington Workshops
		4328	Islington Workshops



Y3409 was converted in 1973 to carry sleepers. Photo by Dave Flanagan.



Ballast plough 3437 at Snowtown in 1974. These ploughs are not fitted with the side hand brake lever as used on the Y class.

the 1887 wagon numbering system. The Webb era used alphabetic letters but they had to represent the type of wagon, O for open and M for merchandise etc. The numbering of all wagons from 1 for each class did not commence until the 1940s.

Thanks to David Parsons for help with these notes.

NO LIFE.

If we are to believe dictionaries and the respective definitions, a model is "an exact, three dimensional representation of an object in miniature", (Collins English Dictionary - 1956). That being the case, a model railway should be a miniaturisation of a railway, but is it?

Most modellers have an area of specialisation, whether it be locomotives, wagons, coaches, track or scenery. There is a strong possibility that, for a model railway to look real, more emphasis has to be applied to scenery, more specifically to structures and life-like detail.

In fact, on layouts that have atmosphere (i.e. the appearance of a complete railway scene) the locos, coaches, wagons and track are not too important and, in many instances, a fair likeness of a loco, painted and lettered correctly, looks as good as a fine detail, accurate, scale model.

Many modellers unintentionally make a decision to have a model railway that lacks life. This is usually achieved by spending too much time on aspects of the hobby that have little to do with a realistic model railway; and isn't that the overall aim we strive for - realism in miniature.

Bob Gallagher

AN INTRODUCTION TO RAILWAY SIGNALLING

Most tramway systems have some signalling and all railways quite a lot except possibly model ones. Is it because most folk model trains rather than railways, or is it a lack of information?

Model railways tend to follow main line prototype, possibly due to most modellers having contact with this type of operation as city dwellers and the dominance until recently of main line motive power among commercial models, both local and foreign prototype. But lately the availability of smaller local motive power, rail motors, etc., plus a pleasing growth of local prototype scratch-building has encouraged branch and secondary line layouts.

Basic considerations

Prototype signalling is expensive and therefore is tailored to suit a line's traffic density. Hence by modelling a branch, or even a secondary line, you minimise the need for that essential finishing touch to any model railway which lays claim to authenticity signalling.

Before the advent of Lucinite for fibre-optics provided us with 'piped light' it was difficult to get lamps small enough for correct scale. Colour-light signals any smaller than 1:64 (S) scale increased the attractiveness of semaphore signals, but even these needed lamps if you intended night operations. Local semaphores are either the older lower quadrant type, which include 'somersault' signals (VR), etc., or the 'three-position' upper quadrant of American origin.

To achieve signal realism their correct operation is essential. Lower quadrants and some suburban upper quadrants operate quite rapidly, but most upper quad' arms are driven by an electric motor and move with a slow, definite action. By the use of a dual voltage supply the 'hot-wire' system used for model level-crossing boom-barriers can be adapted to provide the simplest effective operation of upper quadrants. Lower quad' arms and shunting signals can be driven by a relay, whose

contact springs not only return the signal arm 'normal' (stop) but switch any associated circuits.

If you are modelling a particular line and especially a definite historic period you had better ensure the signalling is correct. This would apply particularly to NSW system

modellers as their system has had many changes during the past 25 years alone. Free-lancers have greater freedom, but must still observe signalling's logical ground rules.

Ground rules

All signalling systems are logical, though all have limitations as well as strengths and have been affected by both local conditions and historic events. Common to all is that a green light permits a greater speed than yellow and yellow a greater speed than red. Also the higher an arm or lamp-case is up a post with more than one unit attached the greater the speed it may authorise.

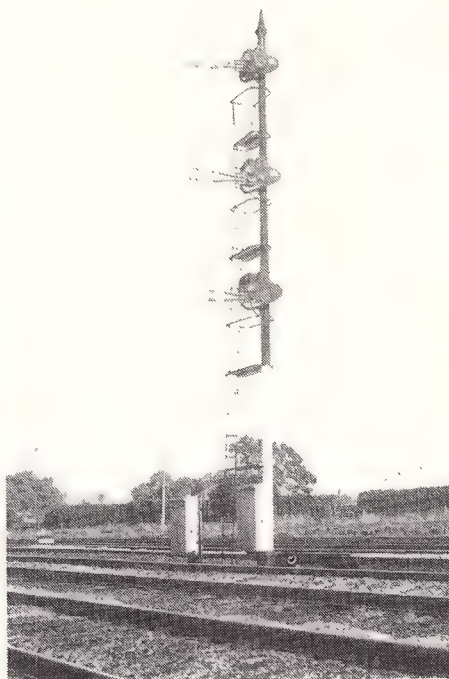
Up to three lights and/or arms may be displayed simultaneously on one post as an 'aspect'. Using green yellow and red lights this offers up to 27 different 'aspects', but to avoid undue confusion the Association of American Railroads (AAR) recommends the use of only 15 of these and then not all on any one system. In most cases the third and lowest light is omitted when it would show red, leaving two lights as the 'aspect'.

An 'aspect' is one combination of lights or arm positions on a signal to give an 'indication' to a driver of an approaching train. In NSW a green over yellow 'aspect' is known by the name 'medium' and gives an indication that speed must be reduced before passing the next signal.

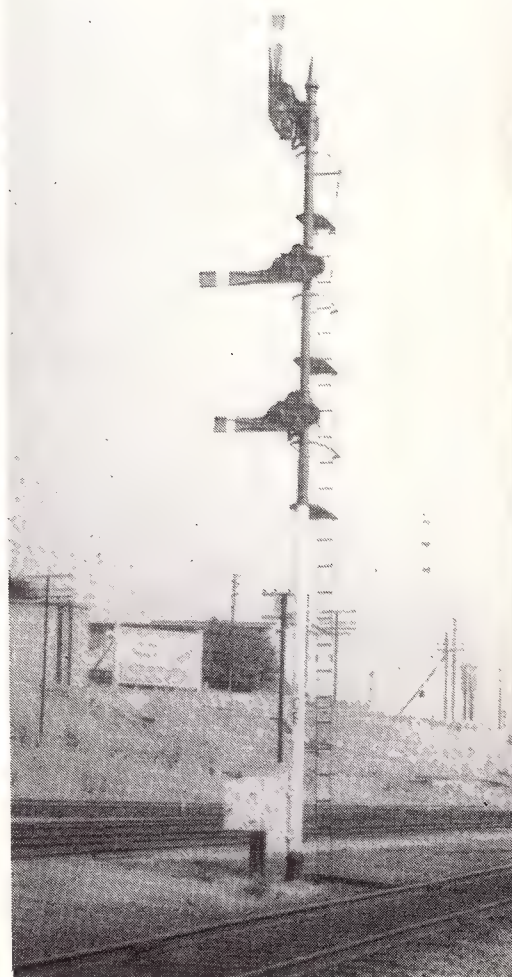
Burnt-out lamps must be guarded against by choosing sets of aspects where loss of one lamp will not cause a driver to mistake it for



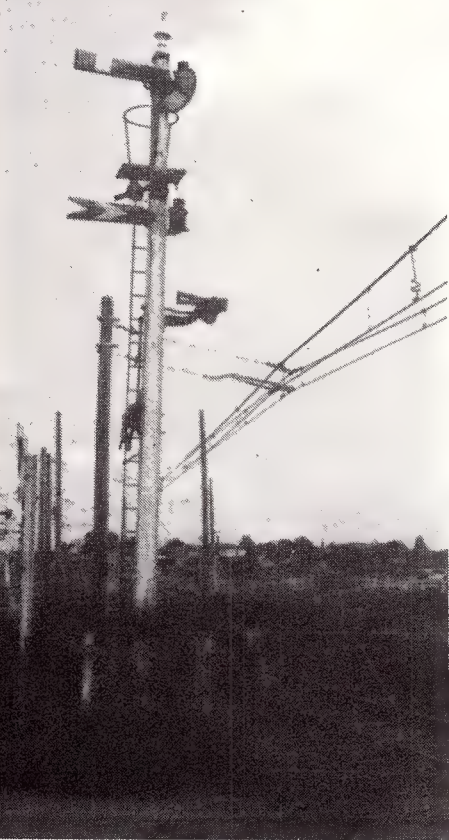
VR: 'Somersault' signals, 'home' above 'distant' arm. Both red with white stripe/chevron —



SAR: Three arm absolute signal, Mile End Junction. Aspect: Stop — Photo D.J. Castle.



SAR: Three arm speed UQ absolute signal with medical officers LQ signal (three arm) in background, Adelaide Yard. Aspect: Normal speed clear. R.T. Taaffe photo.



NSWGR: 'Home', fixed 'distant' and 'wrong road'



VR: Kensington — Absolute 'speed' signal with 'low speed warning' (yellow) light below arms and 'A' light on right of post. Boom barriers and 'F' flashers, ground colourlight shunting signal



VR: Kensington — Automatic (permissive) 'speed' signal with special 'medium speed' spectacle plate. Aspect: Normal speed warning (caution)



VR: Kensington — Automatic (permissive) 'speed' signal with special 'medium speed' spectacle plate. Aspect: Medium speed warning (caution)

more restrictive aspect than otherwise if a signal's lamp burns out. While the latter consists of usually a permanently illuminated red, white or sometimes yellow light mostly mounted below the main arm or lampcase. The use of red marker lights had a decided effect on one's choice of aspects, hence the difference in the 'indication' given by a 'green over red' aspect in NSW as compared to the VR.

Systems

Whether signalling is mechanical or power-operated, semaphore or colour-light, so called 'single-light' or some other variation, it all broadly falls into being classified as either 'speed' signalling or 'route' signalling. Speed signalling is found with some variation in the 'modern' installations of the NZR, SAR and VR and is based on AAR (USA) practice. The system uses up to three arms and/or lampcases on a post and simply tells a driver the speed (km/h) he may proceed at. The top unit is the 'normal speed' (max. permitted anywhere in given section) unit, the middle one the 'medium speed' (varies from 25 to 40 km/h depending on railway concerned) unit and the bottom on the 'low speed' unit which might be a special short arm. The Kalmbach Publishing Co's book 'All About Signals' gives some insight into USA systems.

Route signalling is found in the older installations of the NZR, SAR and VR and throughout all other Australian systems. It indicates the route set and the occupancy of the road ahead so the best speed can be judged. With 'speed' signalling usually no route is indicated, only the maximum permissible speed (km/h) though this speed can often indicate

the route set). This should not be confused with 'speed-controlled' signalling as used on part of Sydney's underground City Railway where the approach speed of a train to a restrictive signal is measured automatically and if too high the 'train stop' arm remains up and engages a 'trip' on the leading bogie to automatically cut-off traction power and make an emergency brake application. Train stops are used on suburban electrified lines in Melbourne, Sydney and Wellington (NZ).

Main line running signals

Both systems have what the AAR refers to as 'absolute' and 'permissive' signals. An absolute signal is a signal controlled by a signal box or CTC panel whose 'stop' indication is absolute and must be observed unless a driver is authorised to proceed by a flagman, traffic officer or some similarly empowered person. A 'permissive' signal is an automatic one only controlled by track circuits which detect a train's presence and may be passed at 'stop' after the train has first come to rest for a specified period. The driver may then proceed with the utmost caution, prepared to pull up



SAR: Train order signal, Strathalbyn. Aspect: Stop to pick-up train orders — Photo D.J. Castle.



Close-up light and Subsidiary Banner Signal below 'B' type colourlight "Tonnage" signal at Lidcombe.

a less restrictive one. Where only one arm or lampcase is used a driver might pass it in the dark without realising it so either a 'lamp proving' circuit or a 'marker light' is provided. The former places the signal 'in the rear' to a



SAR: Two arm permissive 'speed' signal at Port Adelaide. Aspect: Reduce to medium speed. R.T. Taaffe photo.



SAR: Multi aspect colourlight with 'low speed' (yellow) below, relay and equipment cases to left, Glanville. R.T. Taaffe photo.

short of any obstruction. Though if it is what is known as a 'tonnage' or 'grade' signal some freight trains will not be allowed to pass it at 'caution', due to having a load in excess of that which can be restarted from rest on the grade extending from that signal to at least the next signal. These signals have a cast metal instruction plate mounted on or beside them in NSW and elsewhere usually a large G plate. Permissive signals are usually identified by large A plate or by the lights being staggered to opposite sides of the post or the shape of the tip of the arm in the case of semaphores.

Two-position lower quadrant semaphore signals are still in use throughout Australasia. The square ended arm of 'home' (absolute) signals being red with a vertical white band on its approach side and showing a red light when horizontal for 'stop' and a green light when 45-60 degrees below horizontal for 'clear'. A green light is also shown for 'clear' in the case of the fish-tailed (notched) arm 'distant' signal but when horizontal at 'caution' it may show either a red or a yellow light. In the former case the approach side of the arm is usually red with a white chevron or reversed K, and in the latter yellow with a black chevron. Some railways require a driver to 'stop and then proceed' rather than merely reduce speed on reaching such a signal at caution. NSW often fit a fixed green light above a distant's arm to give green over red while at 'caution'.

Up to about 1930 at least, NSW followed the British practice of distinguishing lower quads controlling less important parallel tracks, e.g., 'goods' roads, from 'main' roads, from 'main' line ones by fitting an oval ring towards one end of an arm. The fitting of a large black X to an arm indicates it is not in use.

Another rare lower quad is the 'smash board' which when at stop fouls the side of any train trying to pass it. The arm hitting the driver's cab side gets his attention, even in thick fog. The QR used these until about the mid-1960s, calling them 'smash signals'.

Three-position lower quadrant signals proved unsatisfactory and two-position ones posed severe limitations upon signal engineers until the three-position upper quadrant semaphore was developed in USA during the early 19002. NSW and the VR adopted this new type of signal as early as 1913 and considerable lengths of line were fitted with this type of power signalling. In Britain only two railway companies made small installations of these signals, the last being removed about 1974 despite the fact that in 1924 it had been decided not to install any more and henceforth use colourlight signals for all new installations. Thus clearing the way for the distinctive British railway two-position upper quadrant giving 'clear' 45 degrees above horizontal. Due to their marked mechanical simplicity these became the standard replacement when a lower quadrant signal became due for renewal.

A three-position upper quadrant in effect combines the roles of both 'home' and 'distant' lower quadrant signals on one post; displaying a red light when horizontal ('stop'), usually a yellow at 45 degrees above horizontal ('caution') and green when the arm is vertical ('clear'). Arms are usually red with a white band and square ends on 'home' signals and pointed arms with a white reversed chevron on automatic signals. In NSW all such signals have square end arms though pointed arms were once used for auto signals not fitted with telephones. Until recently there were four examples at Hexham on the coal roads but the only large installation was made in the 1920s when the Molong-Dubbo line received 'Absolute Single-line Automatic' signalling to handle an anticipated increase in traffic. Fishtail arms and yellow marker lights are used for 'distant' and 'repeater' signals, though this was only the practice in NSW during the 1913-21 period.

Marker lights on other variations of these signals may be red, purple, or white, depending upon the period and the system.

Older 'two-light' aspect NSW upper quadrants are distinguished by having a small two-light lamp box or, if oil lamp equipped to reduce the current drain on their battery, a small two-lens spectacle plate driven by a rod connected to the main arm spectacle plate. Usually these are mounted below the arm but



Searchlight signal (VR) at Moonee Ponds.

on upper quad distants they are mounted above the arm and occasionally this is done with ordinary signals' lamp boxes for sighting purposes when located just beyond a low road overbridge.

Most upper quad signals use a standard spectacle plate in which the coloured lenses are mounted, but there are two exceptions. The 'medium speed' arm of an automatic 'speed' system signal which has a cranked spectacle plate to permit its light being offset to the opposite side of the post to that of the 'normal speed' arm above it. The other is the 'train-order board' used in USA and on the SAR. They are often mounted in pairs back to back on the one post and either arm can be used in three, two or even only one position. Their spectacle plates are mounted above the top edge of the arm at the pivot end.

The colourlight signal and its later variation the 'searchlight' signal are the newest types of trackside signal. They consist of one, two or three units or lampcases per post and sometimes include some form of route indicator. Each lampcase may have up to three and sometimes even four lenses, while in the case of a searchlight unit up to three different colours are shown individually through a special system of lenses and reflectors which project a searchlight-like beam. The aspects shown by a colourlight are the same as an equivalent upper quad semaphore at night, each lampcase or unit taking the place of a semaphore arm. The lampcases being staggered in the case of any automatic signal.

An unusual type of colourlight in the USS (Union Switch & Signal Co.) 'G' type signal. Occasionally one sees H0 models of these in hobby shops and the VR has one at Yarraville. The lamps and their hood were arranged in an equilateral triangle with the green at the top as an apex and the yellow (left) and the red (right) side by side below it.

To conserve battery power in country areas sometimes colourlights and searchlights are 'approach-lit' as found in the SAR, NZR and more recently NSW. The signal only lighting up once a train has approached within a certain distance of it.

Cabsignalling

Some overseas railways and rapid transit systems have dispensed with trackside signals except at junctions and the like and adopted 'cab signalling'. This can be of 'intermittent' or 'continuous' type. The former only picks up

information as it approaches or passes a signal, or where one would normally be erected, where as the latter continuously picks up information inductively (electrically) from the rails of the track-circuit immediately in front of its leading wheels. With 'cab-control' a model system can easily represent it.

A form of the intermittent system is once



NSWGR: Wrong road and shunting signals, one post, read top-bottom, routes left-right —



Wrong Road and Dead-end signals at Adamstown, NSW.



A rare "shunt-ahead" Ralph Disc at St Marys, NSW.



SAR: Electric motor operated GRS three-position disc, Mt. Barker Junction. R.T. Taaffe photo.



NSWGR: Triple 'Banner' shunting signal with 'B' type multi-aspect colourlights behind —



Old type Disc shunting signal at Goulburn, NSW.



Colourlight shunting signal (VR) Wodonga, Vic. (Medium height post).



Position-light shunting signal, Granville, NSW.



NSWGR: 'Landmark', bulls-eyes on old rail post



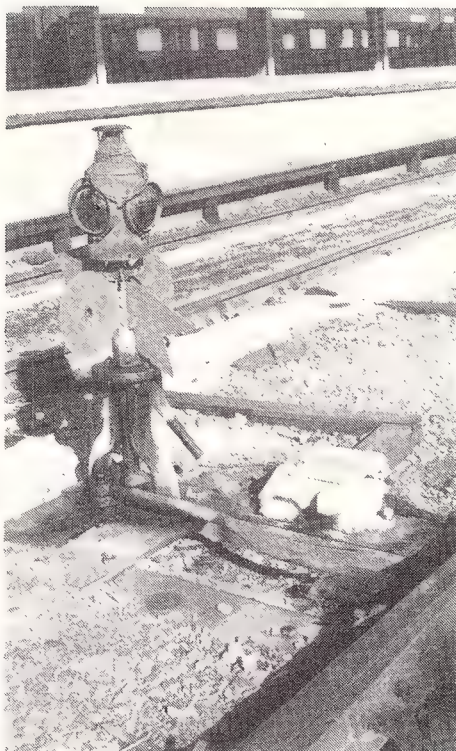
SAR: Main line switch indicator, Mt. Barker Junction. Photo: R.T. Taaffe.

again under consideration in Australia but the nearest we have come to it previously was experimental installations on the Richmond branch (1917-1920) and Main South line (1913-late 1920s) of the NSWGR and the VR. Then a shoe on the loco contacted a ramp in the 'four foot' in the vicinity of distant signals and if the signal was 'on' (stop) a bell sounded and if not responded to an emergency brake application was made.

Subsidiary signals

Subsidiary signals may be lower quad' short semaphore arms, colourlight, disc or banner type mounted below a main line running signal on the same post, on a post of their own, or a ground or dwarf version. They are used for shunting and other special movements and when cleared only give a 'low-speed clear', 'caution' or more restrictive indicating.

A 'shunting' signal has a red arm divided by a horizontal white stripe. A 'dead-end' signal has a very similar arm but has no normal spectacle plate, the lenses being built into the arm which is pivoted at its mid-point. A 'calling-on' has the same arm as a 'shunting' signal but does not show a red light at 'stop' and requires a driver to be especially alert, prepared to stop



SAR: Main line switch indicator — No. 14 road, Adelaide yard (outlying switch lock). Arrow green and red dumbbell — Photo D.J. Castle.

short of any obstruction, once permitted to pass it.

A 'shunt-ahead' signal has a red arm with a large white letter 'S' towards its tip. It shows no light at stop and will only permit a driver to draw passed a 'starting' signal for a limited distance to carry out a shunting movement. Prior to 1960 they were provided on the departure signal's post of the platforms at Sydney terminal station.

The 'wrong road' signal, often referred to as a 'bowtie' due to the shape of its arm, is relatively rare outside of NSW though TGR has one. When cleared it shows a green light with a white centre and permits a shunting move against the normal flow of traffic. A signboard is usually provided to define the limit of such shunting moves.

Older type disc signals, unlike a semaphore arm, rotate on a vertical axis like a point indicator. These turn through 90 degrees to display a distinctive face or target by day and a light by night. Later type disc signals are largely of USA origin and rotate on a normal horizontal axis. They may be the 'Relph Disc' version operated by solenoids found in NSW or operated by an upper-quad semaphore type electric motor. The former are only two-position with either a small 'home' signal or 'wrong road' arm painted on the lower face of the disc. The latter used on the VR, WAGR and SAR may be either a two or three-position signal. On these signals the VR uses a purple light for 'stop', as was once the case on all systems. The 'banner' type signal has a small red centre pivoted arm mounted behind a circular glass cover which is floodlight at night. It may be mounted below a main line running signal on the same post or it may be a ground signal mounted singularly or up to three, one above the other in a distinctive metal housing. It may be a plain red arm, which sometimes is labelled 'close up', 'calling on', 'indicator', or by the route it controls, or where the arm is painted to represent a fishtail arm 'repeater'. The addition of the letter 'S' allows it to serve as a 'shunt ahead' signal and with a suitably painted 'bow tie' arm it becomes a 'wrong road' signal. In some cases a single arm version will have a small circular window below the main window to display small lettered route indicating discs covering several routes.

Colourlight shunting signals are sometimes mounted on top of a short post and may be either the simple type with the lights one above



SAR: Main line switch stand — main line to goods siding, Littlehampton. Arrow green and dumbbell red or yellow dependent on circumstances — Photo D.J. Castle.

the other or the 'position light' type, a British version of which is used by the QR and a similar local variation in NSW. The NSW version had a white marker light when first introduced but these are being progressively converted to red ones.

Flashing light signals are often used overseas as main line running signals to permit higher speeds than normal and if the flasher fails the speed indicated is lower and the usual 'fail-safe' feature of railway signalling maintained. Here a flashing yellow is only used in NSW, either as a 'sub-shunt' signal to permit an engine (only) to draw passed a shunting signal or as a 'shunt ahead' signal.

The simplest Australian signal is NSW's 'Landmark', consisting of yellow triangle mounted on top of a post. The triangle may have a lamp displaying a small black triangle at night, be studded with reflective 'cats-eyes' or covered with reflective material. It is equivalent to a 'distant' signal permanently at 'caution', generally found on branch lines. In some cases a 'distant' signal arm is simply bolted direct to a post by itself or below a 'home' signal.

Point indicators and switch stands are not truly signals but are related to them. The former indicates which way a turnout is laying or whether catch-points are open or closed. Switch stands are of USA origin and used on the SAR, VR, CR, TGR and STC, coming in both dwarf and normal heights. They also come in 'main line', 'yard' and 'derail' types, with a variation of colour allowing a 'main line' type to indicate whether a driver is entering a dead-end or freight line instead of passing siding. SAR modellers could of course import these.

Having listed our 'tools of trade' a following series of shorter articles will deal with their use. Not to the same degree as perfectionist signalling modellers but only on the basis that it is what shows that counts with most of our audiences.

Unless otherwise noted all photographs are by the author.

This article, by Arthur Perry, is a forerunner to a series of articles that are designed to illustrate to the reader, Australian railway signalling systems that can be transformed to modelling purposes. Ed.

BATTERY POWERED LOCOMOTIVE

Although I had thought of using batteries as a power source, it wasn't until I read an article "The Common Market" by R. Symes in Model Railways for October 1971, that I made a start.

My locomotive is constructed for running on Gauge 1 track in conjunction with live steam and clockwork powered locos and is very handy as a shunter, not having to wind the mechanism in crowded yards etc.

I obtained the basic loco, a LGB diesel from Searle of Chatswood, N.S.W. First the large coupling at each end was removed along with the plastic handrails and the moulded airhorn & air cylinder on the cab roof. Internally the 2-rail pickups and wiring to the motor were removed along with the two cast lead weights under the long and short hoods.

Rebuilding started by fitting an inverted 'U' shaped frame made from $\frac{1}{2}$ " x $\frac{1}{16}$ " brass strip in the cab secured by two screws through the floor into tapped holes in the foot section of the frame, which was positioned between the cab door and window on each side. Fitted to the centre top of the frame is a D.P.D.T. centre off toggle switch, the toggle of which extends through a slot in the cab roof, this toggle is partly hidden by a new air horn and air cylinder mounted one each on the roof.

Eight 1.5V Eveready rechargeable disc batteries, obtained from Hobbyco, were mounted in two timber boxes and coupled to a rheostat mounted so that the spindle extended above the cab roof as an exhaust pipe. This rheostat only has a limited range, however I find it suitable for shunting at a slow speed or when running on the main line the top speed is still within reason, hauling a dozen G.I. wagons at an even pace through various grades.

Adjacent to the rheostat is the rectifier controlling the headlights, so that only one light is on depending upon the direction of travel. The plastic headlights fitted to the original loco were cemented in place and small 12V globes secured in each one. Small 3 pin plug and socket, also from Hobbyco, were used throughout to enable sections to be dis-assembled as required. Although these are 3 pin, only two pins were used at each connection. One socket is fixed to the side of each battery box for the adjacent headlight extension, while a third socket is attached to the opposite side of the small battery box for the power circuit, the pin for this is connected to the D.P.D.T. switch, (see diagram).

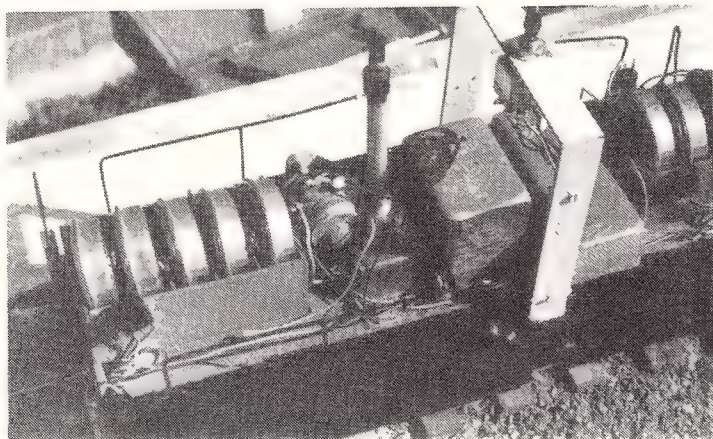
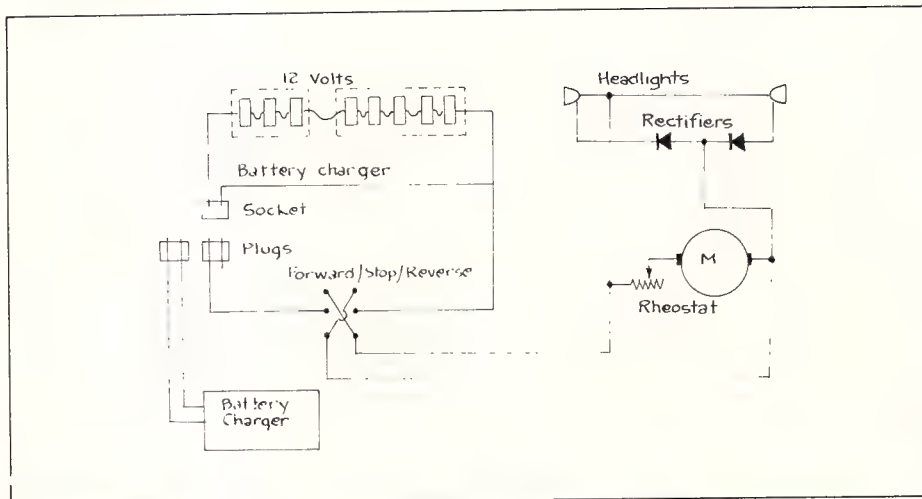
When the batteries need recharging it is necessary to remove the short hood, unplug this third pin, and then plug in the charger to this socket. A bit inconvenient however no major problem. There is a fourth plug and socket which connects the motor & chassis unit to the body unit.

Due to the height of the body, LGB models are built about $\frac{1}{2}$ " scale for metre gauge, a dummy step was fitted at the side doors giving the impression of a correct cab floor to roof

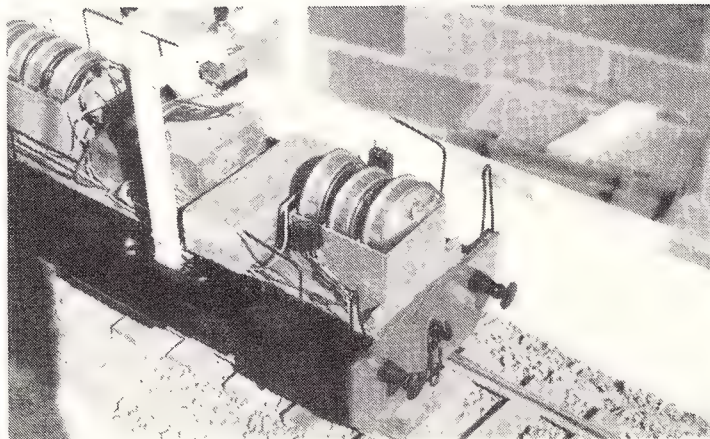
by Jack MacMicking



The assembled loco, still requiring lining out and numbers.



Loco with hoods removed showing the "works". Note inverted 'U' frame with D.P.D.T. switch.



Short hood end showing headlight socket on battery box, (Near side) and power charging plug (opposite side). New weights under switch.

distance.

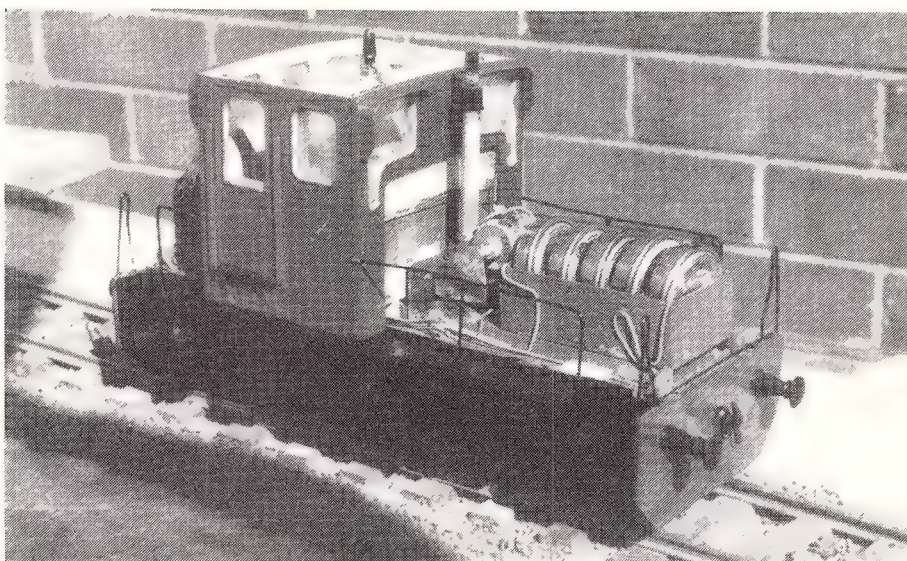
Industrial type buffer plates, 1/16" brass, were fitted to each end, and on these were mounted the drawgear and sprung buffers of N.S.W.R. pattern, supplied by Colin Shepherd, Beauchamp Rd, Marrickville, N.S.W., and the end handrails. Continuous handrails extend from the end steps to the cab on each side.

New cast weights were fitted in the cab, one between the doors and the other under the control cabinet moulded in the cab, these are slightly heavier than the original weights but as the loco has shunted seven heavy Gauge 1 carriages up a slight grade without trouble this is no problem.

The colour scheme is satin black for the running boards, frame etc. green superstructure and buff roof, red buffer plates and black buffers. Lining and running numbers still to be applied.

As I stated at the start, this loco is used on a G.I track, however the method is applicable to other gauges therefore I hope this article may start someone to try an outdoor layout and not have to worry about taking power leads outside or about voltage drop etc.

There is a great deal of pleasure in garden railway, try it.



Long hood removed to show battery box, rheostat spindle extension, etc.

MAILBAG

Sir,

After reading the past couple of issues of AMRM and seeing the comments regarding Australian brass models I thought perhaps your readers would like to hear from a modeller of US prototype for the past 7-8 years and the problems I've had in that time.

Firstly, the reason for the purchase of brass models was the complete lack of commercial RTR items for the two eastern US coal haulers which I'm interested in. Scratchbuilding was out because there weren't even enough parts, eg wheels, etc, available and I haven't got that much patience!

It had been my aim to collect a set of locos from both roads up to the year 1960 (last year steam operation) and, as a result, quite a few different brand names are involved. I have also found that price doesn't always reflect in a good model.

Apart from operational requirements (eg smaller drivers, pony wheels, etc) I've found none of the locos to be 100% correct and I doubt if any will be. As each loco has its own characteristics (even within a class) the model would usually be of the loco of which plans, photos, etc are supplied to the manufacturer. So detail items, etc may change from loco to loco.

Some examples of the problems I've had include the following:- 2-8-4 Berkshire. Good detail, excellent runner; trucks under the tender are completely wrong. My guess is that the manufacturer used the common Buckeye truck to save tooling for new trucks, therefore cost kept down. The fact is hardly noticeable when the loco is running.

4-8-2 of Korean manufacture; cost approx \$150, has fantastic detail, even down to the tender underframe (which can't be seen when loco is on the track). However, the running qualities were poor, even though loco was fitted with a can motor. The addition of a plate to stop excessive gearbox slop and a new open frame motor have made the loco a good runner. Extra cost \$12 plus time involved.

Bo-Bo diesel switcher, imported by the usual US importer of diesel locos. The loco was observed to run on the test track of the retailer but, when the loco was placed on the layout, it wouldn't negotiate any sort of curve. Upon dismantling the unit it was found that the complete drive train needed attention, yet another model from the same source but of different outline ran well with the same mechanical set-up. The detail and workmanship on the model is excellent, yet the model still runs poorly and may well end up as a dummy unit! However, for the purchase price new of \$50 I suppose a great deal shouldn't be expected. US magazines have also criticised the unit for its poor running qualities, so apparently the whole run of locos was the same.

Another example of errors is the NYC 4-8-4 Niagara. This model was produced by approx four different US firms and not one has been 100% correct. Errors include lack of tandem rods, no overflow vents on tender, etc. While these haven't appeared on all models at the same time, the incorrect smokebox detail has appeared on all models. So, maybe the buyers of Australian brass locos who complain when models are re-run and still have errors should take heart from the fact that not all US locos are perfect in details. However, it is my opinion that a small amount of "tinkering" is tolerable if a good finished model is the result. After

all, the locos usually have to be dismantled to be painted, so adjustments to mechanisms is possible. I've known of a few cases where locos have run really well before painting and, despite all care being taken, problems of poor running, etc have taken many hours to solve afterwards.

My observations of the Australian brass locos, etc available are that they have been good value for money, except for the 57 and re-run 32. The 57 class was assembled in batches and, apparently, there was a great difference in quality, etc between these batches, and the price was slightly too high. The less said about the 32 the better as, in my opinion, it wasn't up to the standard of the first run except, possibly, the inclusion of a gearbox makes the loco run better.

The price of Australian models may seem high but I can assure modellers that the prices of US models has also increased drastically in the past 12-18 months.

As far as I know the Australian prototype models are still being made in Japan, whereas a lot of US models are being made in Korea, which effectively lowers the prices.

Present runs of items in the USA are apparently around the \$500 mark and if US models and Australian models are compared (of the same size and complexity) there is not a great deal of price difference.

US prototype locos were built by three major suppliers, Baldwin, Lima and Alco and, hence, locos were supplied to more than one road of the same outline. Parts were also supplied by two or three suppliers so that there is a common look in appliances in US locos and this is also reflected in the models.

If one studies ads in a current US magazine most of the models being offered apply to more than one road, with only small detail changes being visible.

Because castings, etc generally have to be specially made for Australian locos the price will always be slightly higher than the equivalent US locos. However, so far as I'm concerned some of the modellers here complain about the models available to them compared to US models because the average Australian modeller doesn't know (or care) about the details of various locos of US outline.

Summing up, I would say the US locos are closer to the real thing than Australian models, but then again they've had 10 years more experience in the field than Australia.

Bruce Freeman,
Sydney 2000

Sir,

Having been lured to buy your magazine two years ago by its attractive cover and interesting material within, I would like to thank the designer who gave me cause to sift through the magazine in the first place. I am now a regular reader. The magazine is a really professional effort and I sincerely hope that it may maintain its present quantity and quality.

However, I feel compelled to write on a topic that may be quite new to the Australian model railroad community and to many others. I have always like 'O' scale but I was then introduced to the smaller 'S' scale which I find even more appealing. In Australia, this scale seems to be quite rare and it is difficult to obtain equipment. This is a pity really because 'S' scale is very good and it is quite popular in the United States and New Zealand. I would be interested in finding out what the readers think of this scale and whether its popularity in this country is greater than I have envisaged.

In the past three issues of the AMRM I have been aghast at the absence of the book review and I hope

that such omissions will not be indicative of future issues. The book review must remain.

Rick Derwent,
Chatswood, NSW 2067

The basic format for the current AMRM cover was designed by Kevin Hardacre. Book Review, by John Bevan, is included in this issue. (Ed.)

Sir,

For one who is a beginner the 'inspiration' I receive from AMRM comes not just from a 'Comment' but from the careful preparation and selection of articles and review comments. I am glad you take account of the fact that there are always new 'beginners' who have not read the back issues of 3 or 4 years ago.

A suggestion: can you reprint a series of standard goods wagons or passenger car plans either in AMRM or separately? Good wishes for 1979.

Robert Withycombe,
Canberra, 2600.

At present serious consideration is being given towards the reprinting of plans from the pages of AMRM into book form. As the project develops readers will be advised.

Sir,

I was very interested to see in your article "Milk Tankers" (AMRM January/February 1979) that the February 1964 issue of "Mixed Goods" had been used as a reference source. It seems that the passing of a publication confers upon it a degree of authority.

For the benefit of readers who may be wondering about the reference, may I beg space to explain that "Mixed Goods" was a duplicated monthly publication which first saw light of day in April 1958 and ceased publication in May 1965. It operated independently of any club or association, and like AMRM it was staffed by a small band of volunteers who believed sufficiently in this hobby of ours to put into it a considerable amount of work and effort in order that it should grow and prosper.

In 1964 the modelling of NSWGR equipment was in its infancy, being almost the sole preserve of the scratch builder. The majority of equipment then in use by the average modeller was either English (4mm scale or 16.5mm track) or American (correct HO scale). Because of the different prototype sizes the two sets of equipment were of about equal size in model form. The 3/20"-1ft scale, to which the double tank was drawn in "Mixed Goods", was a compromise scale used in those days to permit NSWGR stock to match in size the British or American equipment with which it would almost invariably run.

With the advent of commercial models and mainly through the efforts of organisations such as AMRA and NMRA the modelling pendulum has swung in favour of HO scale and the 3/20" scale is now defunct. There was also a 3.75mm-1ft scale in use about that time, I remember. The difference between them was in the region of .06mm per foot, and so they were considered to be near enough to equal. "Mixed Goods" published plans in both scales but generally stuck to the 3/20" scale. The main object of using these compromise scales was to encourage modellers to build something which would not look out of place when run with their existing equipment.

I am sure that I speak for all those associated with "Mixed Goods" and especially Gus Durham, my co-founder, and Fred Gill who drew the plan and provided the information which accompanied it, when I say that we feel proud that our humble efforts of 15 years ago should be regarded as authoritative enough to be used as a reference by present day publishers.

Ted O'Halloran,
(former Editor, Mixed Goods).

Sir,
I have just read Bob Gallagher's "Comment" in the January/February issue and I immediately sympathise with him when I recall the number of frustrating times I sat trying to get inspiration for an English or history essay at school. Even though these times ended nineteen years ago the memories are still fresh.

But Mr Gallagher can take heart as he has given me an inspiration. A couple of issues ago you carried a photo of a NSWGR 40-class model that one of your regular contributors had constructed and you indicated that an article on its construction would soon follow. At the time, I thought what a shame it was that I hadn't completed the two I was working on, as I could have sent in some details and photos on how I approached the problem.

My 'inspired' idea is that the Editor selects a number of prototypes he thinks would be popular with the readers and publishes a list of them. An article could be prepared using text and photos and drawings submitted by more than one person but on the same prototype. The Editor may ask for no more than two pages (written) of text to be sent, along with photos if possible, particularly ones taken during construction. An article such as this could show the readers that there is more than 'one way to skin a cat'.

I hope this may help to further inspire the Editorial staff as I can appreciate the difficulty associated with doing jobs in 'one's spare time'; there just isn't time for inspiration.

Incidentally, my 40-class consists of lengthened RS2 long and short hoods, Alco C-628 bogies shortened, brass chassis and brass cab. I've been working on them for 8 months now and they will be ready for painting within a month or so (I hope!).

Howard V. Smith,
HORNSBY, NSW 2077.

I can see a number of problems associated with Howard's suggestion — (a) no two modellers use exactly the same construction methods; (b) no two modellers are capable of writing of their methods in the same readable standard; (c) photos and drawings would also not be to the same standard. In short, the whole thing would end up needing either condensing or elaborating, re-photographing and re-drawing. It would tie-up at least three of the staff for an unknown length of time, and working on a volunteer basis as we do we just don't have that time. We have thought of this over the years but find that it is a lot easier on us to "tidy up" the various articles submitted. Additionally, by staggering the different methods used by each author we feel that the reader is best able to comprehend; throw too many ideas to him at once and things invariably become a bit confusing. Ed.

Sir,
In the July/August, 1976 issue of this magazine, the Editor kindly published a letter of mine suggesting the formation of a Model Railway Exhibitions Association. This association would be made up of say, the President or Chairman and the Secretary of each of the clubs or committees organising model railway exhibitions in NSW.

They could meet once or twice a year, organise an exhibition calendar, pool ideas on admission charges, advertising, barriers, etc, so that the best possible exhibitions could be presented to the paying public.

In publishing my letter, the Editor stated that THE magazine would fully support the formation of such an association.

The response has staggered me. Exactly NIL.

Apparently none of the exhibition organisers are interested in improving the public impression of the hobby or making it easier for themselves.

On a different line, I have had the pleasure of participating in the exhibitions at Chatswood in March, Canberra in August and the Showground in October. Also this year (1978) I have visited the exhibitions at Blacktown, Frenchs Forest and Yagoona.

All of these exhibitions were well organised with good quality layouts and stands, the exception being Yagoona. However, I have heard that they are well aware of their shortcomings and steps are being taken to remedy them.

This letter is not being written to knock organisers, but doesn't this point up the fact that an exhibition association is needed?

In each case these exhibitions have been organised and staffed by amateurs to show the public what the clubs and individuals are doing and so promote the hobby. In so doing, the amateurs, you and me, are increasing sales for the trade.

And what is the trade doing to promote the exhibitions? Granted some of the retail stores and one or two manufacturers do exhibit, but apart from distributing leaflets through retail stores, there is no other support.

In other industries such as hardware, boating, furniture etc, their industry associations organise exhibitions each year with good promotion, display, etc.

Unfortunately, the model railway industry in Australia does not have a trade association; however, with the growth of the hobby isn't it about time one was formed? Over to you, manufacturers, wholesalers and retailers!

In the meantime while you are thinking about an association, how about some support for the model railway exhibitions that are staged, when you think

about it, to increase your sales Mr Wholesaler and Mr Retailer.

There are many ways in which you could support these exhibitions by advertising, sponsoring a layout that uses all your equipment, awarding trophies, actually participating in the exhibitions, etc. A good sales promotion or marketing man could come up with all sorts of ideas.

When I was secretary of the Willoughby Festival Model Railway Exhibition Committee, the apathy of manufacturers and wholesalers amazed me. True, a few who were interested in not only increasing their sales but promoting the hobby also, did participate. However, the majority couldn't be bothered answering the invitation, which included a stamped self addressed envelope! As this exhibition was staged to assist local charities, this apathy from the trade was hard to swallow.

Yes, I am well aware that the growth of the hobby will benefit all of us, because the more people in the hobby, the more equipment will become available with a possible stabilising of prices due to greater production.

This doesn't hide the fact that up to now the manufacturers, wholesalers and retailers in Australia have spent very little on promoting the hobby, yet have reaped the benefits. The Amateur model railway exhibitions, not only in NSW but in other states, have done the promoting for them.

If you think organising an exhibition is easy, try it. It's a lot of hard work, the only benefits being that you have promoted the hobby and financially assisted some charities and model railway clubs.

If anybody wants to know how I can make the above statement, I have fifteen years of exhibition experience to prove it.

Before anybody shouts "biased" or more colourful statements, let me assure you that I have no connection now with any exhibition committee, manufacturer wholesaler or retailer. It is not a case of sour grapes either. Like you, I am just an amateur railway modeller, interested in the growth of our hobby.

In all honesty, I feel that the time has come for the trade to live up to its responsibilities and take a more active part in promoting the model railway industry, their bread and butter, our hobby.

Don't you?

Bruce Lovett,
West Killara, 2071.

P.S.: I suppose I will have to scratch-build everything from now on because none of the retailers will serve me. Anybody have any good used equipment for sale?

Sir,

As a keen NSWGR modeller and the possessor of several brass locomotives I read with interest Ian Thorpe's letter in the Sept/Oct, 1978 AMRM and Chris Heazlewood's reply in the Jan/Feb, 1979 issue. Whilst I do not wish to comment on all the issues raised by Ian Thorpe such as accuracy and running characteristics I do feel the question of pricing needs more examination.

In January 1970 the 32-class became available at a price of \$59.95 when average weekly earnings were \$76.10. Thus a 32 could be purchased by devoting 78.78% of the average weekly wage to this purpose. In June 1978 the re-run of the 32 was released at a price of \$235 when average weekly earnings were \$220.40. Thus the purchase of a 32 now consumed 106.62% of the average weekly wage, an increase in real terms of nearly 30%. Therefore, whilst the figures on inflation, exchange-rate changes etc quoted by Chris Heazlewood partly explain why this has happened they should not disguise the fact that brass locomotives of Australian outline are becoming relatively much more expensive to purchase.

The second point I wish to raise relates to the size of production runs. It has generally been assumed that production runs of Australian prototype are small by comparison with those of the US. Information on the Australian position is rare due mainly to the actions of local importers who seem to go to extraordinary lengths to hide the number of units produced. This is in contrast to the US where importers now often state the relevant figure in their advertisements. PFM is actually producing a history of the firms imports with full details including maker, date and the number of units produced.

In the ads I have seen the highest run was 800 units with the lowest being 100. The average appears to be 300-500 which I suspect is near to the usual Australian prototype run. Thus it does not appear to be the size of the production run which allows US importers to produce good models at a much lower price.

I suspect that the price of brass will always be a topical issue. What is needed is more information of the type being made available in the US to allow a more informed debate.

Finally let me echo the sentiments of both Ian Thorpe and Chris Heazlewood in commending those local entrepreneurs who have done much to promote the modelling of local prototype. I hope the continuing rise in brass prices will not lead to a decline in this following. Perhaps the increasing availability of excellent white metal kits and RTR items such as the 38 and 44 classes points the way for the future. I do

not think it can be over-emphasised that the continuing supply of a range of good models at a reasonable price is essential if the modelling of local prototype is to continue to grow.

Ron Cunningham,
Sydney, 2000.

Sir,

With regard to the letter from Mr N. Cram in 'Mailbag' of January/February issue of your magazine, Mr Cram is correct when he stated that 3801-12 could not have been painted green by 1943 as only 3801-3 were in service.

As 'Steam Locomotive Data' was compiled and typed by myself, a typographical error was accidentally made, and '1943' should read — '1946'. My apologies, but these things sometimes do happen.

Mr D. Eichman's reference to the lack of diagrams and a mention of the C30 class locomotives in the above publication, is due, in the first instance to the fact that the Archives Section of the PTC sells outline diagrams of most locomotives and rolling stock of the NSWPTC, as well as other States systems and the inclusion of diagrams in the 'Steam Locomotive Data' book would cut across revenue obtained from the sale of normal diagrams. The exclusion of the blue C30 class from mention in the book was intentional as the painting of these locomotives was unofficial and the book was an official publication.

John H. Forsyth,
Archives Officer,
Public Transport Commission
of New South Wales

Sir,

I try not to get involved in the little controversies that arise in AMRM but today I take a punt. Reviewing the "Data Sheet" plan of the NSWGR 40-class locomotive in the November/December issue (p48) Stuart Livesay says that there is disagreement as to what Alco Locomotive the 40-class was based upon. Date Sheets says RS3 and "An Australian Diesel Spotter's Guide" says RSC3. I've looked at the drawings of these locomotives and checked my second edition of Kalmbach's "Diesel Spotter's Guide" and come to the conclusion that the correct answer is RSC3. The general dimensions of the RS3 and RSC3 are identical, there main difference being the bogies, as the RS3 has four wheel bogies and the RSC3 has six wheel but of the A1A type. As the 40-class had A1A bogies I feel that it is placed as a RSC3. Anyhow even the model numbering indicated that an RSC3 is only a variant of on the RS3. It's interesting to note that only 19 RSC3 model locomotives were manufactured in the USA and Canada, making more locomotives (20) exported to Australia. (The 19 comes from the Kalmbach book which excludes exports and has on page 246 a photo of an RSC3 which should convince the doubtful.)

John Bevan,
Sydney 2000.

AMRM NEWS

Continued from page 22

Sure, five years ago a rather large debt (for 1973) was owing, but the growth and management of AMRM has enabled the debt to be paid off, and for a larger publication to be presented for the reader. The current aim of AMRM is for the magazine to be produced on a non-profit basis where all monies received from sales and advertising are spent on the printing and production of AMRM. This information is repeated once again so that the sceptics can be assured that AMRM is financially stable. For those concerned with the future of AMRM we must point out that it is run by volunteers who donate their time. Once the donors of time cease giving, AMRM cannot live, so spare a thought if you feel you have something to give.

Advertisers

As detailed above advertisers have an important part to play in our hobby and this magazine. (They in fact supply approx. 40% of AMRM revenue). By placing ads in AMRM commercial interests not only help produce this mag. but also bring to the readers attention products that can be used to build a model railway. Granted, there are many products and outlets that do not use the pages of AMRM to show their wares, but what we ask is that where two products are similar or where two outlets sell the same product, you support the AMRM advertiser for they put a little back into the industry that supplies their profit.

Commercial News

It is good to see the honesty of some in the model railway hobby. Greg Edwards, of Data Sheet plans, is venturing on a trip overseas and has, via an AMRM adverb, advised his customers of a temporary cessation in plan production. The honesty shown by his advert, puts his regular customers in a clear mind as to the current situation with his product.

PROtype Model Products (1976) have announced

Continued on page 52



Lima GWR 2-6-2 tank locomotive — Sample supplied by John Leeman & Son. Price \$34.50.

This is the latest locomotive in the Lima British range to reach Australia and in many ways is probably the best British model of steam outline that Lima has produced.

The model represents the Great Western Railway Class 45XX Prairie tank locomotive of which 175 were built for branchline and cross-country working between 1906 and 1929. Several are preserved in working order in the United Kingdom.

The model has several improvements over earlier steam locomotives in Lima's British range. The spoked driving wheels that can be seen through make a big difference to the appearance of the model but unfortunately the front and rear pony wheels are not so treated. There is plenty of detail including masses of rivets and nice fine coupling rods and valve gear for a proprietary model.

It runs well with quite reasonable low-speed capability and hauls an appropriate load. The back-to-back measurement of the wheels was satisfactory for Shinohara pointwork. The usual British tension-lock couplings were fitted.

The sample was in GWR unlined green with brass dome and copper capped chimney, the latter probably inappropriate for 45XX locos in normal service. The model is of course to 4mm scale and seems to be accurate and certainly conveys the character of this class of locomotive. It is also available in line BR black.

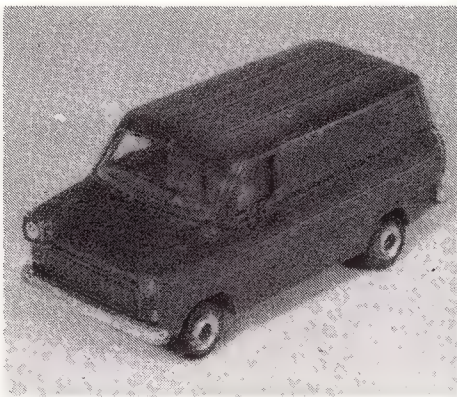
The model will no doubt be quite popular with modellers of Great Western prototype and the improvements incorporated in detail etc augur well for future models in the Lima range.

G. B. Ahern.

Although the construction of this kit would not provide much of a challenge to the average modeller, loading them with logs and chaining them down would (the wagon, not the modeller!).

In all, a good, simple kit for an interesting prototype. Anyone considering this car for their logging line should remember that these cars, although only short (24 feet long over couplers), are 12 feet wide over the bogie centres.

Laurie Williams.



FOR Transit light delivery truck in seven versions. Imported and packaged under the AMRI accessories label. Samples supplied by Sans Souci Sports and Hobby Store, 504 Rocky Point Road, Sans Souci, NSW 2219. Price: \$3.25.

This is an injection moulded plastic kit from Germany which can be put together easily and quickly to produce a good model. It consists of a one-piece body, a sprue tree with about 20 detail parts and a second tree with clear plastic parts for the windows and lights.

Both sprue trees are common to all kits but the basic body is varied to give the seven versions. (The changes are minor being different door and window combinations in either petrol or diesel variations).

The castings are excellent with little or no flash. The parts fit together perfectly and no filing is necessary. The one piece floor acts as a base to which all interior and underbody detail is added. The van body snaps over this after the windows have been added and minor body detail completes the kit.

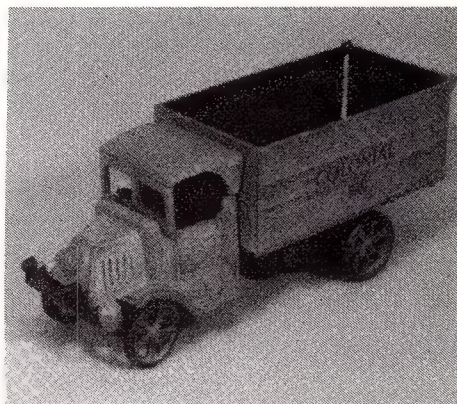
I put the kit together in just over one hour and the removable body allows painting to be left until the kit is complete.

You don't have to worry about the instructions being in German as there aren't any but there is an exploded diagram which is more than sufficient for this simple kit.

Since receiving this kit I have noticed many of these vehicles on the road and can see many uses on the layout. A paint job and some fancy lettering would make an interesting model. Mine is in the paint shop.

being lettered for a local carpet cleaning firm and another in PMG colours is on its way.

A bit pricey at \$3.25 but a simple yet impressive kit.
Ron Cunningham



HO MACK TRUCK by Con-Cor. Injection molded plastic kit in four versions: Van body, coal truck, oil tanker and stake body. Available most hobby stores. Price \$5.60.

The prototype for this kit is the Mack truck chassis of the mid-1920's, a solid tyred, chain driven vehicle with harsh, square lines.

The manufacturer is in fact Heljan of Denmark but packaging is done in the US by Con-Cor (which might help to explain the high price).

Each kit contains two sprue trees of parts, one for the chassis which is common to all models and the second which is varied to give the four different body styles. Steel wire for axles, jewels for head and taillights and a set of decals are also supplied.

The castings are clear and crisp and the parts fit together exceedingly well. I used superglue but any plastic glue would do. A modeller's knife, tweezers and a file to remove flash left on separation from the sprue were the only tools needed.

The instructions are quite clear and the kit can be put together from the diagrams, although simple instructions in English are included.

Decals for each of the four versions are included and with a little ingenuity these could be varied to produce an individual model.

I don't know if these vehicles saw service in Australia, (perhaps a reader could help here) but I like their rugged looks and they should prove popular with the period modeller.

Ron Cunningham

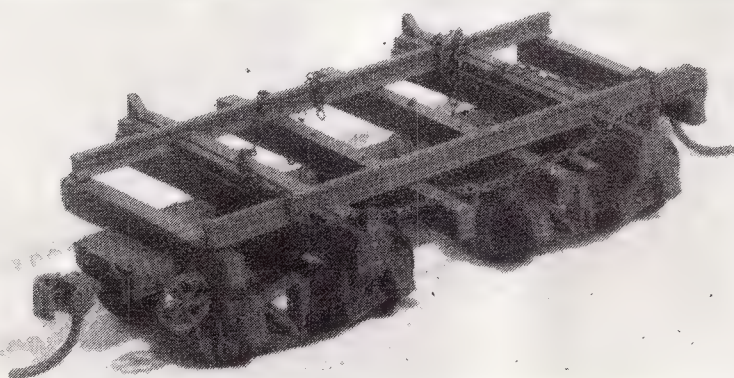
GENERATION ONE, compiled by Shane O'Neill and published by the Australian Railway Historical Society (NSW Division), PO Box E129, St James, NSW 2000, who also supplied the review copy. Price: \$4.00

Generation One is a soft cover booklet of 64 pages that contains a photographic coverage of the early diesel and electric locomotive classes in use in the NSWGR. Features include the 40-class, 41-class, 42-class, 43-class, 71-class, 72-class, 79-class and DP class. AALL coverage is black and white except for the front and rear covers and four inner pages. In most instances the photographs illustrate the locomotives 'in use' and the individual photographer has lent his artistic approach to the compilation of the scene. Some of the ¾ views tend to obliterate the locomotive although not detracting from the entertaining railway scene. Most classes are well covered except for the 72-class which, when working, was hard to find. The colour photographs delightfully depict (for the interested modeller) the varying colours that some of the early diesels carried. The 42, 43 and 72 show the varying shades of red, the 79 a portrait in black and the 40-class is shown in the much faded hue of Royal Blue. Unfortunately a few of the illustrations have not reproduced as well as could be expected and this does detract a little from what is a delightful pictorial booklet that covers an era that has faded away.

Bob Gallagher.

NSWGR IN STEAM by R. G. Preston, Published by Newey & Beath Printers Pty Ltd, Broadmeadow. Copy supplied by the distributor, Australian Railway Historical Society (NSW Division), Box E129, St James, NSW 2000. Price: \$8.00.

Ron Preston, the author and photographer, is a noted author in railway enthusiast circles and has many articles and at least one other book (Tender into Tank) to his credit. This 122-page book is a coverage of the period from 1953 to 1972, when the steam era in NSW was coming to a close. Like many others



interested in railways Ron followed the twin steel rails in search of recording a closing era. Many other author/photographers have published their work but Ron Preston's work seems to stand out from most other publications.

The area covered by the photographs encompasses most of NSW and all locomotive classes in use during the period are included. All photos, excepting the cover and frontispiece, are black and white; all are clearly printed and free of usual printers' blemish. Full use has been made of the page, where the scenes are tastefully bled into the edges of each one. The photo captions, and the actual wording and description within is the aspect that makes this book outstanding. Some well versed railwaymen may find

the text a bore, but those seeking to learn and appreciate a photograph more will gain much from the photo captions.

The modeller seeking to gain some information on NSWGR operation will find this book an endless pit of information for Ron Preston has used railway structures as well as the NSW scenery as a backdrop for his photographs. Technically the books is well produced and, barring one slip, is equal to any other book at present in print. No doubt this can be accredited to the fact that the printer (usually the scourge of the publisher) is in fact the publisher; proudly an Australian printed publication.

In short, a delightful publication.

Bob Gallagher.

BOOKS

by John Bevan

It's nice to be back again after missing an issue a while ago. Thanks to the reader who wrote to the Editor saying how he missed this column. (Although the Editor checked to see if I had written the letter.)

This issue I don't have any particular book to bring to your attention but would like to offer some of my general thoughts on railway books and their contents.

I've been a little alarmed at the flood of books on railway topics that has appeared over the last two or three years. The trouble seems to me to be that publishers have seen that there is a good market for books of this type and set out to meet this market. However, ordinary book publishers have no idea of the competence of the authors that they employ. This, coupled with a lack of the specialised knowledge of the topic in the publishers' editors, has produced some books of dubious accuracy.

The author of a book on a railway topic must, I think, have carried out a fair amount of original research into his subject. It's not good enough to just read through a few other books and rewrite and combine these into a new book. The earlier books on the subject most probably were written from some original research and personal experiences, to add to these just words without additional research is criminal.

When I'm writing this column I don't offer more than my personal opinions. I'm prepared to back them up with research into the facts, preferably first hand, and will debate my opinions. I don't expect the reader to believe anything I write just because I say it's so. The same applies to any article I write: when possible I give my sources and don't mix my opinions and speculation with recorded fact.

Every author must have the right to bring forward his theories and speculations but must be prepared to clearly identify them. I've read too much lately, things like "... a class of locomotives were withdrawn because ..." when the reasons are only the writers opinion based upon a talk one day with another enthusiast.

Such writing will cause only trouble in the future. You see, too many people will believe anything in print, especially if it's in a glossy hard cover book. You as the reader must be prepared to try to distinguish between fact and opinion. At least that's my opinion.

AMRM NEWS

Continued from page 50

the cessation of production of their rolling stock kit range for an unspecified period. The current high cost of casting metal negates the possibility of any realistic price being placed on the kits.

CHI Products have released a catalogue that outlines some of the products they aim to release in the near future. (If all goes well some will be released at the AMRA Camberwell exhibition in early March). Some of the items are revolutionary for the local scene for there seems to be a definite aim to produce a genuine Australian styled structure kit. While some attempts have been made by others in this field they have not met with any realistic success in the final product. The main kit, a stone cottage based on a structure at Maldon (Vic), will feature dental stone castings, styrene and metal fittings. The cottage will feature the original stone building and the weather-board extensions. Another structure will be the Australianisation of Model Masterpieces' Emerald Gazette building, with verandah, galvanised iron roof and Australian style advertising posters. Hopefully, both structures and the CHI Australian figurines will be featured in the review column of AMRM.

It was interesting to learn of the number of Australians who attended the Nuremberg Toy Fair in Germany. With such interest by the commercial sector we, the modellers, must benefit.

Ten Wheel Drive Products, new on the scene, have released a series of coloured photographically produced signs. They feature such well-known advertising signs such as Coca Cola, Chrysler's Sigma, Benson and Hedges and, of course, Victorian Bitter... what about a Tooheys or Swan or XXXX! Seriously, these Australian advertising posters will be detailed in the Review section next issue, but are a welcome product to the local scene.

FSM have released their latest NSWGR locomotive

kit, being a (Z) 24 class 2-6-0 loco and tender unit. The 24 class was introduced as a mainline goods loco, being relegated to branchline service as the years went by, but the remnants of 2413 and 2414 were in use at Bunnerong Power Station (Botany Bay) until recent years. The kit, when assembled, has the squat appearance of a (Z)24 class and, like most FSM units, runs and hauls well. The unit will be featured in a future Review column of AMRM. FSM have started work on the NSWGR D53 and a Wampu tender kit and preparation is in hand for the possible production of the SMR 10 class (Bobtail T). It is interesting to learn that FSM loco kit sales are delayed by the inability of some component suppliers to keep up with the demand.

Mini-Convention

Preparations are well in hand for the Mini Convention to be held in Canberra on Saturday evening, the 4th August 1979. The event is being held in conjunction with the Canberra Model Railway Club's model railway exhibition, and is being organised jointly by CMRC and AMRM. The evening will start with a barbeque and be followed by clinics, talks, films and, if sufficient interest is shown, will be finalised with an auction. The basic programme will be aimed at the serious modeller with an emphasis on the basics for the inexperienced modeller. Sufficient time will be allowed to enable discussion or 'bull' sessions, where modellers can meet others with similar problems and use the situation to get those much needed answers. The overtone of the weekend will be friendliness, that only the CMRC boys can put on. Basic costs will be limited to the barbeque, and to ensure that sufficient numbers are catered for it will be helpful for intending participants to advise the organisers of their intention to attend. Please advise AMRM or the Exhibition Manager at 4 Tompson St, Garra, ACT.

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MAGAZINES & BOOKS, any Railway Modelling or Railfan titles required (Aust, UK, USA) large and small collections purchased. Buyer will collect within Sydney Metro. RAILMAG SERVICE, PO Box 174, Miller, 2168. NSW Ph (02) 601 7906.

WANTED

MINITRAINS HO2 1/2 locos wanted, steam or diesel, running or not. Good prices paid. Send list with prices and phone number to C. Welch, Box 76, Subiaco, 6008 WA. Ph (09) 341 4130.

BRASS Locomotives, steam or diesel any condition. Send item or accurate description. First contact R. Ben- netts, PO Box 335, Nth Adelaide, 5006.

BRASS C38 latest run. Any Australian prototype rollingstock. Model Railroader March 1972. Your price to Colin McLeod, Skye Motel, Holbrook, 2644. Ph (060) 86 2333.

PROTOTYPE Metal kits for VR U van and Z van, assembled or unassembled, any condition. P. Eisenbut, PO Box Gembrook, Vic, 3783. Ph (059) 68 1553 evenings.

WANTED: Brass HO2 1/2 or HO3 Puffing Billy will pay up to \$125; Berghs HO C36 belpair will pay up to \$190; Balboa MOPAC PA set or E8 A & B set diesels will pay up to \$145; Early brass FT, FA, F3, F7, FM, C liners, Baldwin Babyface and Sharknose sets. Phone (02) 85 3788.

WORKSHOP 5 kits. I am interested in buying any Workshop 5 kits that are complete but unassembled. Howard Smith, (02) 217 2450 or (02) 476 4841 (ah).

FOR SALE

COLLECTION of as new brass HO3 D&RGW locomotives and rollingstock. All items professionally and custom painted. Contact Stan Andrews, 61 Jacobina Way, Forrestfield, 6058, WA. Ph (09) 453 9094.

RAILWAY Modellers, in loose leaf binders. Most years from 1956 in complete volumes. Prefer not to split. \$45 the lot. Also various other mags and books, plus small quantity Eggerbahn stock and Peco OO9 track. Offers? Walter Steensby (02) 48 2831.

RIVAROSSE E8A's powered and dummy (Pennsylvania); Rivarossi Krauss-Maffai (unpainted white plastic); Lima C38 (green). All \$35 ea posted. Colin McLeod, Skye Motel, Holbrook, 2644. Ph (060) 36 2333.

MODEL Dockeyard AD60 excellent condition, new motors and pickups, professionally painted. Offers. Consider trading other NSW brass also would like to swap Berghs 57 for berghs 32 or 30T. Dave Greentree, 67 Edward St, Kurri Kurri, Ph (049) 37 3266.

HAVING moved to a smaller house, my HO/OO gear doesn't have room... will be going N. For Sale Triang Freightmaster, Hornby GM class, 4 silver carriages, various assorted Life Like goods, all Hornby couplings. Hornby right and left manual points and diamonds. 24 metres Lima flexi track boxed, approx. 8 metres not boxed. Full price \$130 ono. Stephen Sly, Box 31, Young, 2594.

FOR Sale Wills Finecast loco body kits, GWR Hall, Prairie, King, Star, 94XX, 180ST, Metro Tank, boxed kits; \$150 ono, will separate, phone or write. G. Ledger, Horans Lane, Grose Vale, NSW, 2753. Ph (045) 72 1232.

LIMA 38 class green \$30, Lima Indian Pacific set with 44 diesel \$35. K. Small (067) 66 4564 ah.

'UNITED' HO exquisite detailed brass 1921 Hillcrest 25 ton class B 2-truck geared shay. 1 hour run, mint in box. Collectors item. Offers considered over \$220. Osborne, 111 Ravenswood Drive, Nollamara, 6061. Ph 349 4471.

RAILWAY Modeller. 1974, 1975, 1976, 1977, 1978. \$6 per volume. History of Model and Miniature Railways. 45 parts. \$15. E. Gray, 56 Somerset Drive, North Rocks, NSW.

WESTSIDE HO UP FEF 3 4-8-4, mint condition, never run. \$300. Melbourne 88 4154.

BRASS HO kits (Toby, Japan) Neilsen-built 4-4-0 similar Tasmanian B class and WAGR R class. Two available \$150 ea. Downes, 151 Greenwich Rd, Greenwich, 2065.

O GAUGE CCW kits, boxed: Unused LMS Jubilee 4-6-0 loco body & tender kit, nickel silver, plus all wheel castings: Unused van kit; Partly assembled wagon kit. Will exchange kits with appropriate cash adjustment for either Hornby No 2 special clockwork 4-4-0 loco & tender, or set of Hornby bogie coaches. Alternatively would sell kits for \$70 the lot. J. Murray, 2 Edwin Terrace, Gilberton, 5081. (08) 44 3446.

NSW C38 brass 2nd run, painted black with red lining, weathered & KDs. W. Hiley, PO Box 41, Miller, NSW 2168. Ph (02) 235 7344 (ah).

LARGE quantity Marklin HO track & points. 5pr large radius elect points 9" length; 1 pr small radius elect points; Approx 40 large radius curves 9"; 34 small radius curves; 60 9" straights plus signal rails and power rails & lots of small pieces. Still in boxes. Sell whole or part. Best offer. G. Gardiner, 43 Berringer Rd, Valentine, 2280. Ph 46 8802.

On3 locomotives — D&RGW No 50 diesel switcher \$200. LMB DSP&P Mason bogie 2-6-6 \$350. Kemtron 37 ton 2 truck shay \$375. On3 Casey Jones Rail Bus \$75. On2 converted to On3 Custom Brass SR&RL coach No 19 \$80. All above items in as new condition. 1 On3 2 Truck Goose 1-On3 3 Truck Goose. Both partly finished \$85 including plans. All On3 items brass. Marklin 'Z' Gauge: 1 2-6-0 loco, 1 0-6-0 steam loco, 4 0-6-0 diesel locos, 2 Bo-Bo diesel locos, 5 assorted wagons, 2 of the locos in need of attention, will sell the lot for \$325. Books — The Shay Loco, Titan of the Timber, Best Offer. Pacific Coast Shay by Dan Ranger \$15. Memorial Edition, Denver South Park & Pacific \$20. Ride the Sandy River \$15. All books in mint condition. HO Scale: an assortment of 90 Preiser figures and animals \$35. Stephen Poole 7mm scale loco and 4 wagons, ready for painting. Loco less Hornby chassis. All soldered construction, \$50 the lot. Peco N gauge

Continued on page 62

FSM

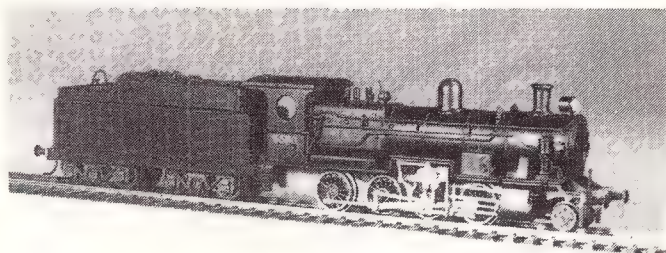


NSWGR Z25 Class locomotive and tender kit. HO scale. Redesignated \$78.00 posted. Standard or Extended Smokebox, please specify.

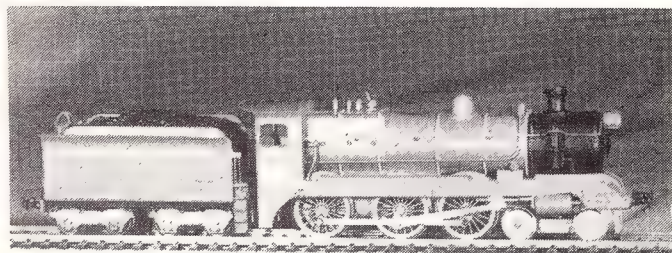


NSWGR Z24 Class locomotive and tender kit HO scale. Porthole Cab. Internally sprung tender. Posted \$78.00.

NSWGR Z18 Tank locomotive kit. Posted \$68.00.



N.S.W.G.R. D55 Class loco and tender kit. HO scale. \$115.50 posted.



N.S.W.G.R. C35 Class loco and tender kit. HO scale. \$97 posted.

The D53 and the Wampu Tender kits should be in production by about the end of May, 1979. Current dispatch delays are due to a number of factors and every effort is being made to overcome the back log.

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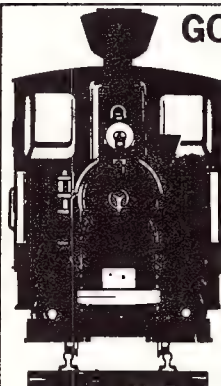
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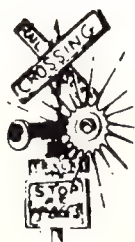
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Detailing parts for U.S., and in some cases, Australian Diesels. Illustrations above are 1½ times HO Scale. More illustrations appear in the Walther's Catalogue (\$6.50 post paid) or we will send Photocopies on request. Number in brackets indicates pieces per package.

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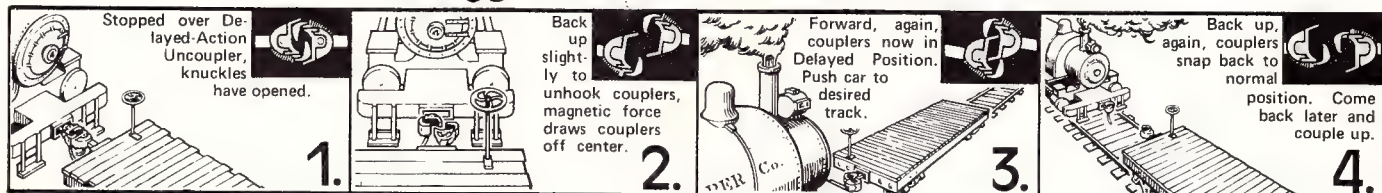
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ATHEARN HO

Athearn is one of the fastest selling lines we carry. Listed below are some of the items in the shipment we expect to arrive late March. If you have a specific Athearn requirement please write—we may have it in stock, if not we will order it for you.

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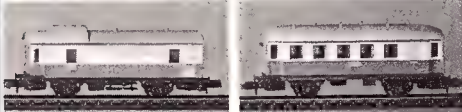
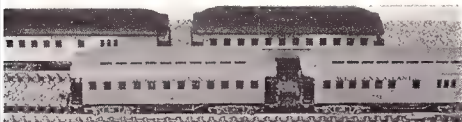
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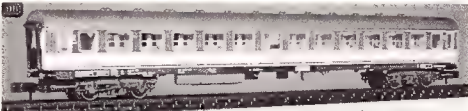
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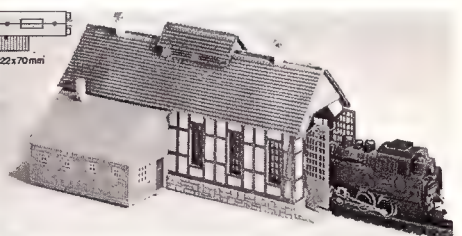
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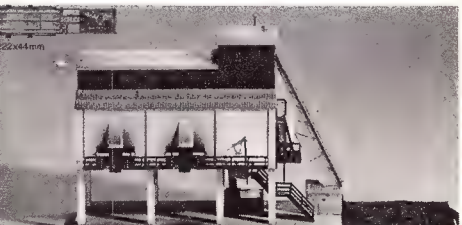
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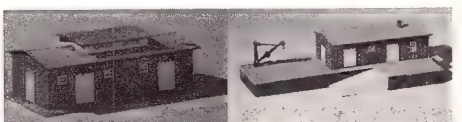
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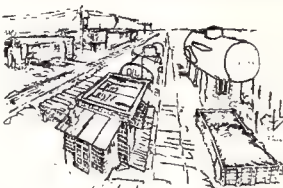
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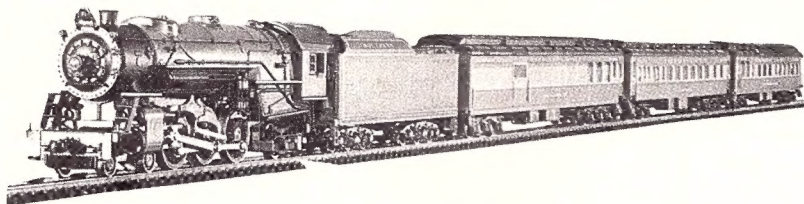
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Railroad Modeller	\$1.20ea
Railway Modeller (UK)	80cea
Mod. Rly Constructor	80cea
Aust Mod Rly Mag	80cea

(Many Pre 1950 MAGS POA)

BOUND VOLUMES

(Normally 12 mags per volume)

R.M.C. 1968-1977	
M. Rr. 1964-1977	
TRAINS 1964-1977	
R.R. Modeller Vol. 1-7	
from \$24 per volume	
Railway Modeller (UK) 1962-1977	
From \$16 per volume	

PRE-READ BOOKS

(Many rare and hard to get titles)

Cars of the Pacific Electric Vol. 1 & 2
Steam on the Veld

Durrant! Jorgensen! Lewis!

Cooktown Railway

J. W. Knowles.

Ride the Big Red Cars

S. Crump

Locos of Sir Nigel Gresley

O. S. Knock

Std. 8mm FILMS/SLIDES

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Adelaide Trams & S.A.R.

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MODEL RAILWAY EXHIBITION BY PROSPECT MODEL RAILWAY CLUB

Queen's Birthday Holiday Weekend

June 16th, June 17th, June 18th

Sat 9am-6pm. Sun 10am-6pm. Mon 9am-5pm

Adults 80c. Children 40c. Senior Citiz & Child under 5 Free

VENUE

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Opposite Westpoint

On Show Will Be:-

Layouts in HO & N. Static Displays. Lots of brass locos on Show.
Australian and U.S. prototype.

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Second Hand Sale All Weekend Open to All

10% to Club Anything from Brass locos to mags. Bring em along, see if we can sell it for you.

Any enquiries phone Bob Payk. 623 1855

See you There!

Greg Archer
Secretary.

canberra model railway club

A progress report on preparations for the 1979 Canberra Model Railway Exhibition and Mini-Conference on Sat-Sun 4th-5th August at the Phillip College, Woden Valley, ACT :

A large number of applications to exhibit have been received including a strong contingent from Melbourne. The CMRC looks forward with pleasure to being able to offer modellers the chance to see for the first time at the same venue a collection of layouts brought together from both Sydney and Melbourne as well as Canberra.

The Modelling Competition will have additional prizes this year for the best Australian, US and British prototype models as well as handicap sections. Now is the time to start working on your entries. We have already had an expression of interest from a lady modeller so watch out fellas! Remember, apart from the chance of winning a prize, you give fellow modellers the chance to see your work and appreciate a variety of modelling techniques.

The Mini-Conference on the Saturday night is fast shaping up to an exciting evening for the serious modeller. Nevertheless, the program is not yet fully committed; if there is a "clinic" on a particular subject that you'd like to see, then let us know. Conversely, if you have some expertise you would like to share then please contact our Exhibition Manager, David Mitchell, as set out below or Bob Gallagher of AMRM. In addition to the Mini-Conference there will be the opportunity to visit some local layouts on the following Sunday morning.

As an added weekend interest there should also be a scale model exhibition at the Malkara Special School quite nearby. This will have a strong local model engineering and railway presence. To round out the "Canberra Weekend" we hope the ARHS will offer some local 1 435mm steam working on both days.

Lastly, if you are interested in receiving further details on the Exhibition, the Mini-Conference or the Competition, send us your name and address stating your particular interest(s). For those who'd prefer to phone locally for information, CMRC has established some interstate contact points : in Sydney, Ian Henderson (969 2815 AH), Melbourne - Alan Hackett (560 8060 AH), Adelaide - Fr Robert Ebbs (44 5660) and in the far west contact Phil Knife at North West Cape.

All mail to :
DAVID MITCHELL
EXHIBITION MANAGER
4 TOMPSON ST
GARRAN ACT 2605

I. B. Macfarlane
PRESIDENT, CMRC.

009

FLEXIBLE TRACK - 457mm (18 inches) long
SL-400X Wood grained sleepers & nickel silver rail

POINTS & ACCESSORIES

SL-491X Right Hand Point
SL-492X Left Hand Point
(Use N gauge rail joiners SL-310X metal, SL-311 insulated)

INTERNATIONAL (FINE SCALE) POINTS for NMMR, BMRB & European wheel standards.
Insulfrog with wood grained sleepers & nickel silver rail
SL-686 Curved Point - r/hand
SL-687 Curved Point - l/hand
SL-688 5' Radius Point - r/hand
SL-689 5' Radius Point - l/hand
SL-691 2' Radius Point - r/hand
SL-692 2' Radius Point - l/hand
SL-696 3' Radius Point - r/hand
SL-697 Short 'Y' Point
SL-698 Long 'Y' Point

FLEXIBLE TRACKS - 906mm (1 yard) long
SL-100X Wood Grained Sleepers & Nickel Silver Rail
SL-100S Wood Grained Sleepers & Steel Rails
SL-100B Wood Grained Sleepers & Brass Rails
SL-102X Concrete Sleepers & Nickel Silver Rails
SL-102S Concrete Sleepers & Steel Rails
SL-102B Concrete Sleepers & Brass Rails

UNIVERSAL POINTS - INSULFROG (Wood grained sleepers & nickel silver rails)
SL-84X Catch Point - right hand
SL-84X Catch Point - left hand
SL-85X Curved Point - right hand
SL-85X Curved Point - left hand
SL-87X Curved Point - r/hand
SL-88X 5' Radius Point - r/hand
SL-89X 5' Radius Point - l/hand
SL-91X 2' Radius Point - r/hand
SL-91X 2' Radius Point - l/hand
SL-92X Short Crossing
SL-93X Long Crossing
SL-94X 3' Radius Point - r/hand
SL-95X 3' Radius Point - l/hand
SL-96X 3' Radius Point - r/hand
SL-97X Short 'Y' Point
SL-98X Long 'Y' Point

ELECTROFROG POINTS (Live Frogs)
SLE-86X Curved Point - Right Hand
SLE-87X Curved Point - Left Hand
SLE-88X 5ft Radius Point - Right Hand
SLE-89X 5ft Radius Point - Left Hand
SLE-91X 2ft Radius Point - Right Hand
SLE-92X 2ft Radius Point - Left Hand
SLE-95X 3ft Radius Point - Right Hand
SLE-96X 3ft Radius Point - Left Hand
SLE-97X Short Y Point
SLE-98X Long Y Point

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TRACK 'N POINTS

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FLEXIBLE TRACK - 906mm (1 yard)
SL-700X Wood grained sleepers & nickel silver rail

POINTS & ACCESSORIES
SL-791X Point, r/hand 1828mm rad.
SL-792X Point, l/hand 1828mm rad
SL-794X Crossing
SL-797X 'Y' Point, 1828mm radius
SL-784X Catch Point, right hand
SL-785X Catch Point, left hand
SL-701 Point Sleepers (20)
SL-702 Running Rail Chairs (100)
SL-703 Slide Rail Chairs (50)
SL-707 Frog Units Each
SL-708 Point Blades & Brackets
SL-709 Switch Kit for Electrofrog
(Use HO/00 rail joiners SL-10X metal SL-11 insulated)



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FLEXIBLE TRACK - 906mm long (1 yard)
SL-300X Wood grained sleepers & nickel silver rail
SL-300S Wood grained sleepers & steel rails
SL-302X Concrete Sleepers & nickel silver rail
SL-302S Concrete Sleepers & steel rails

POINTS (Wood grained sleepers and nickel silver rail)
SL-384X Catch Point - right hand
SL-385X Catch Point - left hand
SL-386X Curved Point - right hand
SL-387X Curved Point - left hand
SL-386X 3' Radius Point - r/hand
SL-387X 3' Radius Point - l/hand
SL-391X 18" Radius Point - r/hand
SL-392X 18" Radius Point - l/hand
SL-394X Long Crossing
SL-397X Long 'Y' Point

FLEXIBLE TRACK

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SL-700X - 906mm (1yd)

HO/00

SL-100X - 906mm (1yd)

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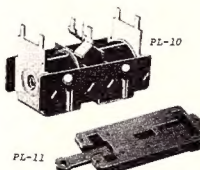
SL-300X - 906mm (1yd)

009

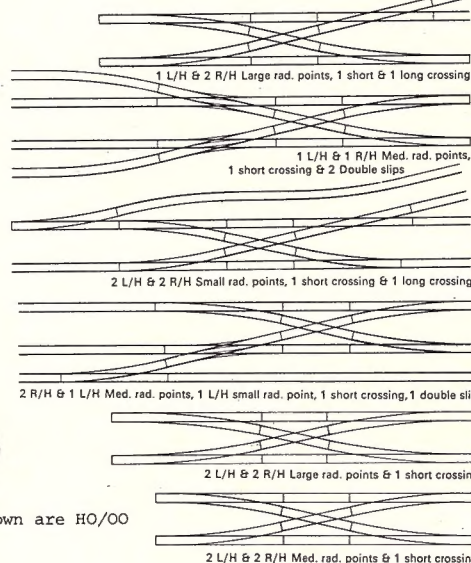
SL-400X - 547mm (18")

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PL-10 Point Motor
PL-11 Adaptor Base for PL-10
PL-16 Point Operating Switch
PL-17 Probe for Point Operation
PL-18 Studs & Tag Washers - PK of 25
PL-20 On/Off Isolating Switch
PL-21 Double Press Switch
PL-40 Wheel Cleaning Brush/Scraper
PL-41 Track Cleaning Block



Track formations shown are HO/00



HO/00
SMALL
RADIUS POINT
WITH ELECTROFROG

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